

foreign countries, there would be a minor cost advantage only if the foreign country did not require the floor proximity emergency escape path marking system. Since the cost of the marking system is negligible compared to the total costs of new aircraft, there is essentially no impact on trade.

Conclusion

Under the terms of the Regulatory Flexibility Act (the Act), the FAA has reviewed this proposal to determine what impact it might have on small entities. Since the projected cost of compliance could be between \$5,500 and \$17,400 for each aircraft in the Part 121 fleet, the FAA has determined that this rule, if adopted, may have a significant economic impact on a substantial number of small entities. Consequently, a regulatory flexibility analysis and regulatory evaluation has been prepared. It is contained in the docket which is open to public inspection. A copy of the evaluation may be obtained by contacting the person identified under the caption "FOR FURTHER INFORMATION CONTACT."

As required by the Act, various regulatory alternatives were considered, such as: Making the requirements applicable only to new airplanes, having different standards based on the size of the air carrier, letting the air carrier industry decide whether to use the new systems, and requiring all airplanes operating under Part 121 to come into compliance with the requirements within a certain time period. Safety needs are such that the FAA has selected the latter alternative set forth in these amendments. The alternative of making the requirements applicable only to new airplanes was rejected because of the delay this would cause implementing the new standards throughout the fleet. The alternative of having different standards based on the size of the air carrier was rejected because the FAA believes all members of the traveling public should be equally protected. The alternative of letting the air carrier industry decide whether to use the new systems was rejected because in the past a voluntary approach to new equipment has not resulted in fleetwide implementation of desired safety advances.

These amendments are not likely to result in an annual effect on the economy of \$100 million or more or a major increase in costs for consumers; industry; or Federal, State, or local

government agencies. In addition, these amendments will have little or no impact on trade opportunities for U.S. firms doing business overseas or for foreign firms doing business in the United States. Accordingly, it has been determined that this is not a major regulation under Executive Order 12291. In addition, the FAA has determined that this action is significant under Department of Transportation Regulatory Policy and Procedures (44 FR 11034; February 26, 1979).

List of Subjects

14 CFR Part 25

Air transportation, Aircraft, Aviation safety, Safety, Tires.

14 CFR Part 121

Aviation safety, Safety, Air carriers, Air transportation, Aircraft, Airplanes, Airworthiness directives and standards, Flammable materials, Transportation, Common carriers.

Adoption of the Amendment

Accordingly, Parts 25 and 121 of the Federal Aviation Regulations (14 CFR Parts 25 and 121) are amended as follows effective November 26, 1984:

PART 25—AIRWORTHINESS STANDARDS: TRANSPORT CATEGORY AIRPLANES

1. By amending § 25.812(a)(1) by removing the phrase "and interior lighting in emergency exit areas" and inserting, in its place, the phrase "interior lighting in emergency exit areas, and floor proximity escape path marking".

2. By amending § 25.812 by redesignating present paragraphs (e) through (k) as paragraphs (f) through (l).

3. By amending § 25.812 by adding a new paragraph (e) as follows:

§ 25.812 Emergency lighting.

(e) Floor proximity emergency escape path marking must provide emergency evacuation guidance for passengers when all sources of illumination more than 4 feet above the cabin aisle floor are totally obscured. In the dark of the night, the floor proximity emergency escape path marking must enable each passenger to—

(1) After leaving the passenger seat, visually identify the emergency escape path along the cabin aisle floor to the first exits or pair of exits forward and aft of the seat; and

(2) Readily identify each exit from the emergency escape path by reference only to markings and visual features not more than 4 feet above the cabin floor.

4. By changing the reference in the introductory text of newly designated paragraph (f) of § 25.812 from "paragraph (g)" to "paragraph (h)".

PART 121—CERTIFICATION AND OPERATIONS: DOMESTIC, FLAG, AND SUPPLEMENTAL AIR CARRIERS AND COMMERCIAL OPERATORS OF LARGE AIRCRAFT

5. By amending § 121.310 by revising paragraph (c) to read as follows:

§ 121.310 Additional emergency equipment.

(c) *Lighting for interior emergency exit markings.* Each passenger-carrying airplane must have an emergency lighting system, independent of the main lighting system. However, sources of general cabin illumination may be common to both the emergency and the main lighting systems if the power supply to the emergency lighting system is independent of the power supply to the main lighting system. The emergency lighting system must—

(1) Illuminate each passenger exit marking and locating sign;

(2) Provide enough general lighting in the passenger cabin so that the average illumination when measured at 40-inch intervals at seat armrest height, on the centerline of the main passenger aisle, is at least 0.05 foot-candles; and

(3) For airplanes type certificated after January 1, 1958, after November 26, 1986, include floor proximity emergency escape path marking which meets the requirements of § 25.812(e) of this chapter in effect on November 26, 1984.

6. By changing the reference in the introductory text of paragraph (d) of § 121.310 from "§ 25.812(g)" to "§ 25.812(h)".

(Secs. 313(a), 314(a), 601 through 610, and 1102 of the Federal Aviation Act of 1958 (49 U.S.C. 1354(a), 1355(a), 1421 through 1430, and 1502); 49 U.S.C. 106(g) (Revised, Pub. L. 97-449, January 12, 1983))

Issued in Washington, D.C., on October 22, 1984.

Donald D. Engen,
Administrator.

[FR Doc. 84-28293 Filed 10-23-84; 2:09 pm]

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Federal Register

**Friday
October 26, 1984**

Part IV

Department of Transportation

Federal Aviation Administration

**14 CFR Parts 25, 29, and 121
Flammability Requirements for Aircraft
Seat Cushions; Final Rule**

DEPARTMENT OF TRANSPORTATION**14 CFR Parts 25, 29, and 121**

[Docket No. 23791; Amdt. Nos. 25-59, 29-23, and 121-184]

Flammability Requirements for Aircraft Seat Cushions

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final rule.

SUMMARY: These amendments establish new flammability requirements for seat cushions used in transport category aircraft certificated under Part 25 and Part 29 and require that the cushions in transport category airplanes type certificated after January 1, 1958, and operating under Part 121 comply with these new requirements after November 26, 1987. These new requirements are in addition to the present flammability requirements contained in the Federal Aviation Regulations and represent a significant advancement in aircraft fire safety.

EFFECTIVE DATE: November 26, 1984.

FOR FURTHER INFORMATION CONTACT: Henri Branting, Technical Analysis Branch (AWS-120), Aircraft Engineering Division, Office of Airworthiness, Federal Aviation Administration, 800 Independence Avenue, SW., Washington, D.C. 20591; telephone (202) 426-8382.

SUPPLEMENTARY INFORMATION:**Background**

On August 23, 1983, the FAA issued Notice of Proposed Rulemaking No. 83-14 (48 FR 46250; October 11, 1983). This notice proposed to establish additional flammability requirements for seat cushions used in transport category aircraft certificated under Part 25 and Part 29 of the Federal Aviation Regulations (FAR) and to require that the cushions in most transport category airplanes operating under Part 121 comply with these new requirements 3 years after the effective date of the amendments.

The notice responded to certain findings and a recommendation of the Special Aviation Fire and Explosion Reduction (SAFER) Advisory Committee and was based on research and development carried out by the Federal Aviation Administration (FAA) Technical Center and the Ames Research Center of the National Aeronautics and Space Administration.

The SAFER Advisory Committee was established in June 1978 by the FAA as a result of information from public hearings on aircraft fire safety. The FAA

directed the Committee to "examine the factors affecting the ability of the aircraft cabin occupant to survive in the post-crash environment and the range of solutions available." The Committee consisted of 24 representatives of a wide range of aviation and general public interests. Technical support groups included approximately 150 of the world's top experts in fire research, accident investigation, materials development, and related fields. At the conclusion of its investigation into cabin materials technology, the Committee issued findings and formal recommendations pertaining to long-range research, design, testing, and the problems of smoke and toxic gas emission. One recommendation was that the fire blocking layer concept be developed for aircraft seat cushions as a means of retarding flame spread. The FAA concurred in this recommendation and carried out the research and development necessary for implementation of the concept.

As a result of regulatory amendments adopted in 1972, aircraft seat cushions are typically constructed of fire-retardant polyurethane foam and upholstery covering, all of which must presently pass the Bunsen burner test prescribed in § 25.853 of the FAR. In a prolonged full-scale cabin fire condition, however, severe thermal radiation can break down the outer upholstery covering and penetrate into the relatively large fuel mass of the polyurethane foam core. This causes the core to become involved in the fire, spreading flame and producing potentially lethal smoke, combustible gases, and toxic gases. The results of accident investigations and experimental fire tests conducted by the FAA have demonstrated that this involvement of foam cushion material is a dominant factor in the spread of cabin fire. To counter this, fire retardant performance standards for seat cushions based on the level of protection that can be achieved by the fire blocking layer concept were proposed in Notice 83-14.

The fire blocking layer concept involves the use of a thin layer of highly fire-resistant material to completely encapsulate and protect the larger mass of foam core seat cushion material from involvement in the cabin fire. This layer of fire-resistant material delays the onset of ignition and retards the involvement of the core in the fire.

The initial phase of the FAA research program for fire blocking layers consisted of a series of instrumented controlled environment cabin fire tests which confirmed the efficacy and practicality of fire blocking layers for aircraft seat cushions.

The subsequent phase of the program developed the test for evaluation and certification of cushions, using an adaptation of the type of 2 gallon/hour kerosene burner which is currently in standard use throughout industry as a test for metallic tubing assemblies and components. This test subjects the cushion test specimen to temperature and heat typical of full-scale cabin fire and is far more realistic and severe than the Bunsen burner test currently required in Part 25 for cushion materials.

Notice 83-14 proposed the detailed procedures of the kerosene burner test developed by the FAA. The proposed test would subject seat bottom and seat back cushion specimens to a 2-minute burner flame impingement. The proposed criteria for acceptance were based, in part, on the percentage weight loss of the cushion specimen during the test. While the proposal was based on the performance attained by fire blocking construction, the proposal would not require that seat cushions be constructed in that way. Rather, it proposed objective standards of performance for seat cushions so that if other or improved means of accomplishing the fire safety objective are developed, they can be used without a need for regulatory amendment. The notice proposed to incorporate the new cushion flammability requirements as additions to the type certification standards for both transport category airplanes and transport category rotorcraft since the flammability requirements for these two categories of aircraft are identical. The notice also proposed that 3 years from the effective date of the final regulation, seat cushions in airplanes type certificated after January 1, 1958, and operated under Part 121 meet the new requirements.

Public Participation

These amendments are based on Notice 83-14. All interested parties have been given an opportunity to participate in the making of these amendments, and due consideration has been given to all matters presented. Except for the changes discussed below, these amendments and the reasons for their adoption are the same as those stated in Notice 83-14.

Discussion of Comments

Forty-two comments were received in response to Notice 83-14, representing the views of aircraft and equipment manufacturers, aircraft operators, material producers and testing laboratories, aircraft crew organizations, U.S. and foreign

government organizations, and consumer interests. The comments strongly support the objective of reducing the fire potential of seat cushion materials.

Several commenters believe the new cushion requirements should set limits on smoke and toxic gas emission. One commenter suggests using the National Bureau of Standards (NBS) smoke density chamber for this.

The FAA recognizes that reduction in smoke and toxic gas emission is an important issue in fire safety. Notice 83-14 explains that the new cushions will greatly reduce emissions by virtue of their reduced heat and flame spread potential. This has been proven by full-scale cabin fire tests. However, addressing the emissions issue in quantitative terms and setting limits on emissions based on a defined test procedure are beyond the scope of Notice 83-14. The NBS chamber mentioned by one commenter is a small-scale laboratory test which is not suitable for testing large cushion assemblies.

Several commenters contend the requirements should not apply to relatively small transport category airplanes such as executive airplanes and airplanes seating less than 44 passengers. Several of these commenters contend the basis for the justification for the requirements is the 40 seconds which can be gained in usable evacuation time through use of improved cushions to delay fire spread. They say while this gain might apply to larger aircraft, it cannot be realized in the smaller aircraft which generally have short evacuation times. Other commenters recommend extending the requirements to airplanes certificated under FAR Part 23 and those operated under FAR Part 135.

The FAA does not agree that benefits of the new requirements will be realized only in larger aircraft. The new requirements will greatly improve the fire safety of those furnishings which make up a major part of the cabin by reducing the potential for ignition and occurrence of fire and by inhibiting flame spread and smoke and toxic gas emission in the event fire does occur. Ignition, flame spread, smoke, and toxic gases are all potential hazards in inflight fires as well as in those post-crash fires involving emergency evacuation. Although the potential gain in evacuation time is more pronounced in larger aircraft, the new requirements will significantly benefit smaller aircraft as well. Notice 83-14 explains that the FAA is considering the need to propose similar requirements for small airplanes and rotorcraft used in Part 135

operations. Regulatory action for this would be the subject of a separate notice if found to be appropriate.

Several commenters contend the requirements should not apply to flight crewmember seats and flight attendant seats. These commenters point out that seat comfort has a significant influence on flight crewmember performance and efficiency and that there is the possibility fire blocking layers could compromise comfort on flights of long duration. They point out that the risk of fire involvement of flight crewmember seats is low because the seats are isolated from passengers and fuel, located near a fire extinguisher, and occupied at all times by personnel trained in fire prevention and control. One commenter points out that cushions of a flight attendant seat usually are thin and that the added thickness and weight of a fire blocking layer might interfere with the seat-retract mechanism.

The FAA agrees with the commenters on the issue of flight crewmember seats. Since inservice evaluation of fire blocking materials has not been completed, and those materials with optimum comfort properties have not been identified, it would be premature at this time to require the retrofit of seats the comfort of which might affect performance of the flight crewmembers. Since flight attendants do not usually remain in their seats for the duration of the flight, flight attendant seats are not considered as critical as flight crewmember seats from the standpoint of comfort and are not excluded from the requirements. There are several commercially available fire blocking materials which are thin and lightweight. These should have no effect on seat-retract mechanisms. The rule, as adopted, excludes flight crewmember seats from the requirements but does not exclude flight attendant seats.

Several commenters contend the 3-year compliance period proposed in § 121.312(b) should be extended to allow operators sufficient time to handle technical and logistical problems and to account for longer cushion life spans which they say exceed 3 years in many cases. The commenters contend the fire blocking requirements involve essentially a new technology and untested materials and that the proposed 3-year period does not allow sufficient time for cushion development, inservice testing, certification, production, and installation. They contend the added cost of an accelerated 3-year compliance period would be significant.

The FAA does not agree the compliance period should be extended. The FAA closely monitors industry

progress and, while recognizing the concerns of the commenters, has not found any foreseeable technical problem to suggest that retrofit cannot be accomplished smoothly within 3 years. Although the 3-year period was taken as the life span of a typical cushion, as explained in Notice 83-14, the longer life spans of some cushions mentioned by commenters would have no adverse impact on the regulatory action since the addition of fire blocking layers does not necessarily result in discarding cushions.

Several commenters contend the 3-year compliance period proposed in § 121.312(b) is too long and that fleet retrofit should be completed in a much shorter time. They contend the safety benefits of a shorter compliance time would exceed costs and that this justifies the faster retrofit. Several commenters recommend that all newly manufactured airplanes comply with the requirements within 1 year.

The FAA generally recognizes that benefits from safety improvements are maximized the sooner required retrofits are completed. However, as pointed out by several commenters, the subject regulatory action involves a new technology, and there must be sufficient lead time in the compliance period to enable all parties affected to attain reasonable proficiency, develop design alternatives, produce finished articles, and phase in installations. Fire blocking technology entails new test equipment and criteria and advanced state-of-the-art materials, many of which have not been service tested. The FAA believes a substantial reduction in the compliance period recommended by commenters would be impractical. The recommendation that newly manufactured airplanes comply within 1 year will effectively be achieved since, as a matter of practice, seat and aircraft manufacturers would meet the operational rules which govern their market. It is highly unlikely that manufacturers would produce noncomplying seat cushions after 1 year has passed, knowing the cushions would require retrofit in less than 2 years. It is equally unlikely that older aircraft being refurbished would be refurbished with noncomplying seat cushions, knowing that they would need to be replaced before the end of their normal useful life. These commercial considerations will cause manufacturers and operators who are refurbishing older aircraft to introduce seat cushions with fire blocking layers (or other equivalent means of fire protection) soon after the effective date of this rule. The 3-year

compliance period is adopted as proposed.

Several commenters express concern that the addition of a fire blocking layer to a seat cushion approved under Technical Standard Order (TSO) C72b for flotation devices on TSO-C39a for seats might constitute a major modification of the cushion which could invalidate the TSO approvals.

The FAA has conducted cyclical flotation tests of several fire blocked cushions to determine the effect fire blocking layers might have on the buoyancy of cushions. The typical lightweight, highly fire-resistant materials being used as a fire blocker should have negligible effect on buoyancy. The use of heavy blocking material might reduce buoyancy to the extent which could require requalification under TSO-C72b. Provided the layer does not significantly reduce buoyancy or interfere with grasp straps, markings, or other flotation device features and the cushion foam core is not altered, the addition of fire blocking material is considered a minor modification and does not affect approval under TSO-C72b. Since the fire blocking layer requirements are additional to the requirements of § 25.853 and are in no way expected to affect seat cushions' eligibility to meet the standards of TSO-C39a and be so marked, approval under TSO-C39a is not affected.

Several commenters contend cushions which meet the new flammability requirements should not be required to meet § 25.853(b) as this would be redundant. Commenters contend also that if fire blocking layer material is required to meet § 25.853(b), it should be tested separately and not as part of a cushion assembly.

The FAA believes the new flammability requirements based on fire blocking performance and the requirements of § 25.853(b) are both necessary. Notice 83-14 explains that fire blocking delays, but does not prevent, ignition of cushion foam material and its involvement in cabin fire. The fire resistance required by § 25.853(b) is necessary in the event fire does penetrate the cushion. Under § 25.853(b), fire blocking material would be considered as upholstery in general and would be tested separately if it is not bonded or permanently affixed to the cushion foam. In view of the sound experience which backs up § 25.853(b), highly fire-resistant fire blocking materials should have no difficulty qualifying, whether tested separately or as part of a cushion assembly.

Several commenters contend the proposed requirements of § 25.853(c)

and Appendix F, as written, are inflexible and would require an unnecessary amount of testing with the full-scale oil burner apparatus. Commenters point out there are numerous variations in color, weight, blend, texture, and other properties of cushion dress covering which have a negligible effect on fire safety. The commenters contend that once a cushion assembly is qualified by the oil burner test, minor changes in dress covering should be allowed without requalification by full-scale testing.

The FAA agrees with the commenters that once a cushion is qualified by full-scale oil burner tests, additional tests are not necessary for minor changes in dress covering provided the replacement covering is similar to the original covering in fire resistance. The FAA recognizes that as experience is gained in the testing of various fire blocking materials and material combinations, the purposes served by full-scale testing and the situations which warrant it will become clearly focused. Therefore, paragraph (a)(3) of Part II of Appendix F is revised to allow that for a cushion which has been qualified by the oil burner test, the dress covering of that cushion may be replaced with a similar dress covering if the burn length of the replacement covering, as determined by the test specified in § 25.853(b), does not exceed the burn length of the original covering.

Several commenters contend the oil burner test is impractical for aircraft certification and that there should be provisions for testing small-scale laboratory specimens with smaller equipment such as the Meker gas burner, the Ohio State University Heat Release Chamber, or a radiant panel type test. Several commenters are concerned that the oil burner test is not suitable for quality control testing.

The FAA does not agree the oil burner test is impractical or should be replaced by some other test. It is intended as a design qualification test to substantiate the performance of an assembly product. The test subjects specimens to temperature and heat flux typical of cabin fire, as determined by full-scale cabin fire tests. For seat cushions, as for other aircraft components and assemblies, the required quality level of constituent materials is assured by use of small-scale tests or other assay methods selected by the manufacturer for the particular materials in question. The FAA does believe that eventually other tests may be developed which could be used for the qualification of cushions. While the commenters do not substantiate the validity or equivalency of another test at this time, the FAA

believes this option should be left open to encourage future developments. Accordingly, § 25.853(c) and § 29.853(b) are specifically revised to allow a finding of equivalency.

Several commenters contend the ten percent weight loss limit is not a realistic measure of a cushion's resistance to fire and is not an appropriate criterion for acceptance. The commenters suggest using an absolute weight loss of around one-half pound per specimen. One commenter suggests using a rate of weight loss, although no specific rate is suggested. Several commenters contend that under the 10 percent criterion, an adequate supply of fire blocking materials will not be available to meet airline needs.

The FAA believes the 10 percent weight loss criterion is appropriate. The FAA has tested over 300 candidate fire blocking materials, of which over 100 passed the 10 percent criterion. The use of absolute weight loss in lieu of percent weight loss as the criterion for these materials had an insignificant effect on the overall pass/fail results. Percent weight loss normalizes test results according to specimen weight and affords a safeguard against the use of materials which might have a lower resistance to fire in combination with a lower weight. There is no indication a rate of weight loss as suggested by one commenter is more appropriate than percent weight loss. Rate of weight loss alone in this case would not provide a relevant indication of fire resistance unless related to time. The 10 percent criterion relates to test duration which, as adopted, does not exceed 7 minutes. In view of the FAA materials tests and industry's progress in implementing the fire blocking concept, the FAA believes there is an adequate supply of materials to meet airline needs.

Several commenters contend the dimensionally standard specimens specified in Appendix F are not a realistic representation of cushions with complex curvatures and unique shapes. The commenters recommend testing actual cushions.

The FAA believes only dimensionally standard specimens should be used in the subject test to ensure a consistent baseline for comparison of cushion fire blocking performance. The test measures the effectiveness of material, or materials in combination, in delaying involvement of cushion foam in fire. For this, standard specimens of the materials are needed. The FAA evaluated the testing of nonstandard cushion shapes and found this can produce results unsuitable for the comparison of materials.

One commenter contends the requirements do not make clear if the seat bottom and seat back cushions must be constructed of identical fire blocking materials or may have different materials and different levels of fire blocking performance. This is a critical consideration since the test is more severe to the seat bottom specimen than the back specimen.

The requirements do not intend that materials in the back cushion necessarily be the same as those in the bottom cushion since material selection might be governed by comfort, durability, and other factors pertinent to the particular cushion. However, the requirements do intend that the materials in both the bottom and the back cushions be able to satisfactorily withstand the flame impingement of the test burner since in an actual cabin fire, flame impingement might be equally severe to both cushions. To clarify this intent, paragraph (a)(3) of Part II of Appendix F is revised to require that if different material configurations are used in the bottom and back cushions, each configuration must be tested as a complete specimen set.

Several commenters point out that the back sides of many seat back cushions are bonded to metal which effectively provides blocking layer protection. The commenters question whether in such cases the back side of the cushion must be enclosed by the same fire blocking material used to enclose the other sides.

The rule does not require the same blocking layer material be used to enclose all sides of a cushion, nor does it preclude the use of metal blocking layers. As adopted, it requires that the cushion meet the prescribed test requirements or equivalent. Seat structure in combination with some other material would be an acceptable combination of fire blocking materials, provided adequate performance of the combination is substantiated.

Numerous comments were submitted regarding the details of the proposed new test criteria of Appendix F. As a result, there are many revisions in the criteria, most of which are simple refinements to increase test repeatability. The most significant revisions are in section (a), Criteria for Acceptance, and these have only a minor effect on the performance level required of cushion specimens. Paragraph (a)(2) is revised to delete the requirement for venting internal cushion pressure. This requirement is not necessary since aircraft cushions inherently are self-venting by construction to accommodate cabin altitude changes. Paragraph (a)(4) is clarified by changing the term "flame

spread" to the term "burn length," as currently used in Appendix F and by specification of a maximum permissible burn length based on specimen width. Also, paragraph (a)(4) is clarified regarding the number of specimens which must pass the test. Notice 83-14 proposed that one-half of the required three specimens, or two, pass. The rule as adopted specifies two out of three. Paragraph (a)(5) is revised to clarify the procedure for determining specimen weight after the test and to ensure that wide fluctuations in test results of marginal specimens do not unduly influence the pass/fail outcome of combined test results. The proposed requirement that there be no flaming accumulation of melted material beneath the test specimen is deleted. This was found to be impractical.

Flaming material accumulation is as much a function of the test apparatus as of specimen material properties.

Numerous clarifications are made in sections (b) through (h), all of which have a negligible effect on test requirements. The method for determining ventilation rate of the test area is clarified. Tolerances for length, weight, temperature, and heat flux are specified, and additional descriptive information on equipment is provided. A requirement for conditioning the specimen at 55 percent relative humidity is specified. The type of fuel used for the test is specified as #2 Grade kerosene or equivalent. The time and means are specified for terminating the test for those specimens which do not self-extinguish.

Regulatory Evaluation

This amendment is expected to provide a net benefit to society, as likely benefits are expected to exceed likely costs. This evaluation relies heavily on information developed in a study done by the National Bureau of Standards (NBS), Center for Fire Research entitled *Decision Analysis Model for Passenger—Aircraft Fire Safety With Application to Fire—Blocking of Seats*, published in March 1984. A copy of this study is available in the docket of this rulemaking action.

The NBS study reviewed an accident data base which included all world aircraft accidents where fire was a factor in fatalities, as well as major aircraft hull property damage incidents where a fire blocking seat interior might have lessened or eliminated property loss. The NBS study report lists all of these accidents, as well as the rationale for estimating the effectiveness of fire blocking layers in saving lives and lessening property damage.

The benefit effectiveness of fire blocking layers is basically a function of the increased time that is made available for aircraft evacuation, as a result of fire-blocking layers. This time is varied, ranging between 20 seconds and 60 seconds, in the NBS study. Table 1 below summarizes three basic values for fire-blocking benefits, based on assumptions of increased evacuation time and different levels of property damage. The only adjustment to the NBS study data is the use of a value of life of \$650,000 compared to the \$500,000 value in the NBS study. The higher number is used in FAA evaluations.

FIRE BLOCKING SEAT ALTERNATIVES
ANNUALIZED BENEFIT SUMMARY

(Values in millions of 1983 dollars)

Additional evacuation time (sec- onds)	High Middle Low		
20	16.9 lives.....	10.8 lives.....	4.4 lives.....
	\$3.87 damage.....	\$2.21 damage.....	\$1.76 damage.....
43	\$14.85 total.....	\$9.23 total.....	\$4.60 total.....
	20.1 lives.....	13.6 lives.....	4.7 lives.....
60	\$3.87 damage.....	\$2.21 damage.....	\$1.76 damage.....
	\$16.92 total.....	\$11.05 total.....	\$4.81 total.....
60	22.3 lives.....	13.6 lives.....	4.7 lives.....
	\$3.87 damage.....	\$2.21 damage.....	\$1.76 damage.....
	\$18.37 total.....	\$11.05 total.....	\$4.81 total.....

NOTE.—Lives saved are valued at \$650,000 per life.
Source: NBS study p. 28 (except as per note).

For purposes of this evaluation, we will concentrate on the middle and high benefit range and limit analysis to the 20- and 43-second added evacuation time summaries. In this approach, we eliminate the extremes of very long evacuation times and very low benefit rates.

The NBS study estimated the costs of fire blocking seat alternatives much as the NASA study cited in FAA's preliminary regulatory evaluation did. The important elements of incremental cost are the incremental costs of refurbishing seats with seat blocking materials and the operating cost of carrying added weight around in the aircraft.

The following table summarized the high, middle, and low cost estimates of the incremental cost of material and installation for three blocking alternatives. The first is Norfab, a weave of 25 percent Nomex, 70 percent Kevlar, and 5 percent Kynol, aluminized on one side. The second is a loosely woven fiberglass scrim and a lightweight fiberglass paper bonded with a fire retardant adhesive. The third is $\frac{3}{16}$ " Neoprene foam, bonded to urethane. The manufacturing costs are based on estimates provided by two seat manufacturers.

**INCREMENTAL COST OF FIRE BLOCKING LAYERS
FOR U.S. FLEET (MATERIALS, INSTALLATION
AND OPERATING COSTS)**

[Data are in millions of 1983 dollars]

Fire block alternative	High	Middle	Low
Norfab			
Materials and installation.....	\$16.56	\$11.83	\$9.75
Operating cost.....	9.93	9.93	9.93
Total cost.....	26.49	21.76	19.68
Fiberglass			
Materials and installation.....	11.17	6.68	4.81
Operating cost.....	2.92	2.92	2.92
Total cost.....	14.09	9.60	7.73
Neoprene			
Materials and installation.....	16.95	9.29	5.40
Operating cost.....	19.49	19.49	19.49
Total cost.....	36.44	28.78	24.89

Source: Tables G-10 and 6 of NBS study.

The results of the NBS study indicate that there are fire blocking alternatives for which likely benefits clearly exceed likely costs. The fiberglass fabric alternative has a benefit/cost ratio greater than one except in those instances where comparisons use low benefits or high costs and middle benefit. Comparing middle costs with middle benefits, the benefit/cost ratio is 1.15.

There is some uncertainty about the predicted ultimate costs and benefits of the fire blocking rule which is adopted by this amendment. The major questions result from the uncertainties as to which technically feasible solutions will be practical. Several different solutions are being tried by industry, each of which appears promising. The optimum solutions will be known only after having fire blocking alternatives put into widescale utilization and testing with the airlines. On balance, however, FAA believes that this evaluation and the NBS study show that the amendment will create a net benefit to society.

It is expected that the airline supplies and materials industries will work with the airlines to develop a relatively inexpensive, lightweight fire blocking material. Even if practical problems are encountered with a fiberglass material, these problems will likely be solved, or alternatives will likely be developed with have weight and expense factors similar to fiberglass fabrics.

**Regulatory Flexibility Act
Determination**

A final Regulatory Flexibility Analysis was conducted in compliance with section 604(a) of the Regulatory Flexibility Act. The conclusion in the initial regulatory evaluation, that the rule may cause a significant economic impact on a substantial number of small

entities, is not altered by the present evaluation.

There were no public comments in response to the initial regulatory flexibility analysis, and there are no alternatives which lessen the impact on small entities while providing all members of the traveling public with an equal level of protection.

Paperwork Reduction Act

Information collection requirements in this regulation (Part 25, Appendix F) have been approved by the Office of Management and Budget under the provisions of the Paperwork Reduction Act of 1980 (Pub. L. 96-511) and have been assigned OMB Control Number 2120-0018.

Conclusion

Under the terms of the Regulatory Flexibility Act (the Act), the FAA has reviewed this amendment to determine the impact it might have on small entities.

Since the estimated impact on the small unscheduled air carriers could be approximately \$9,000 per year, it has been determined that this rule may have a significant economic impact on a substantial number of small entities, such as small air carriers operating under Part 121. As required by the Act, the FAA has completed a regulatory flexibility analysis as part of the regulatory evaluation. A copy of the analysis/evaluation is contained in the regulatory docket. A copy of it may be obtained by contacting the person identified under the caption "FOR FURTHER INFORMATION CONTACT."

The Act also requires that when there is a significant impact on small entities the agency must consider alternatives in the rulemaking process. In the case of flammability requirements, the alternatives are limited in number. One alternative would be to lessen the impact on small entities by making the more stringent requirements apply only to the larger air carriers or by allowing the smaller entities a longer period to come into compliance. These alternatives were rejected because of the importance of passenger safety, whether traveling on a large, scheduled airline or on a smaller, unscheduled airline. As alternative approaches, the FAA considered both regulations that would specify the only materials and construction processes permitted to be used and regulations that set performance standards to be met. The FAA has proposed performance standards to permit those operating under Part 121 the opportunity to choose and install the most economical materials and processes capable of

meeting the flammability performance standards.

This rule is not likely to result in an annual effect on the economy of \$100 million or more, or a major increase in costs for consumers, industry, or Federal, State, or local government agencies. In addition, this rule would have little or no impact on trade opportunities for United States firms doing business overseas or for foreign firms doing business in the United States. Accordingly, it has been determined that this is not a major regulation under Executive Order 12291. In addition, the FAA has determined that this action is significant under Department of Transportation Regulatory Policy and Procedures (44 FR 11034; February 26, 1979).

List of Subjects

14 CFR Part 25

Air transportation, Aircraft, Aviation safety, Safety, Tires.

14 CFR Part 29

Air transportation, Aircraft, Aviation safety, Safety, Tires, Rotorcraft.

14 CFR Part 121

Aviation safety, Safety, Air carriers, Air transportation, Aircraft, Airplanes, Airworthiness directives and standards, Flammable materials, Transportation, Common carriers.

Adoption of the Amendment

Accordingly, Parts 25, 29, and 121 of the Federal Aviation Regulations (14 CFR Parts 25, 29, and 121) are amended as follows, effective November 26, 1984:

**PART 25—AIRWORTHINESS
STANDARDS: TRANSPORT
CATEGORY AIRPLANES**

1. By amending § 25.853 by redesignating present paragraphs (c) through (e) as paragraphs (d) through (f) and adding a new paragraph (c) as follows:

§ 25.853 Compartment interiors.

(c) In addition to meeting the requirements of paragraph (b), seat cushions, except those on flight crewmember seats, must meet the test requirements of Part II of Appendix F of this part, or equivalent.

2. By amending Appendix F to Part 25 by removing the introductory sentence and by designating the text of Appendix F to Part 25 as Part I as follows:

Appendix F

Part I—An Acceptable Test Procedure for Showing Compliance With §§ 25.853, 25.855, and 25.1359

3. By amending Appendix F to Part 25 by adding a new Part II to read as follows:

Part II—Flammability of Seat Cushions

(a) *Criteria for Acceptance.* Each seat cushion must meet the following criteria:

(1) At least three sets of seat bottom and seat back cushion specimens must be tested.

(2) If the cushion is constructed with a fire blocking material, the fire blocking material must completely enclose the cushion foam core material.

(3) Each specimen tested must be fabricated using the principal components (i.e., foam core, flotation material, fire blocking material, if used, and dress covering) and assembly processes (representative seams and closures) intended for use in the production articles. If a different material combination is used for the back cushion than for the bottom cushion, both material combinations must be tested as complete specimen sets, each set consisting of a back cushion specimen and a bottom cushion specimen. If a cushion, including outer dress covering, is demonstrated to meet the requirements of this appendix using the oil burner test, the dress covering of that cushion may be replaced with a similar dress covering provided the burn length of the replacement covering, as determined by the test specified in § 25.853(b), does not exceed the corresponding burn length of the dress covering used on the cushion subjected to the oil burner test.

(4) For at least two-thirds of the total number of specimen sets tested, the burn length from the burner must not reach the side of the cushion opposite the burner. The burn length must not exceed 17 inches. Burn length is the perpendicular distance from the inside edge of the seat frame closest to the burner to the farthest evidence of damage to the test specimen due to flame impingement, including areas of partial or complete consumption, charring, or embrittlement, but not including areas sooted, stained, warped, or discolored, or areas where material has shrunk or melted away from the heat source.

(5) The average percentage weight loss must not exceed 10 percent. Also, at least two-thirds of the total number of specimen sets tested must not exceed 10 percent weight loss. All droppings falling from the cushions and mounting stand are to be discarded before the after-test weight is determined. The percentage weight loss for a specimen set is the weight of the specimen set before testing less the weight of the specimen set after testing expressed as the percentage of the weight before testing.

(b) *Test Conditions.* Vertical air velocity should average $25 \text{ fpm} \pm 10 \text{ fpm}$ at the top of the back seat cushion. Horizontal air velocity should be below 10 fpm just above the bottom seat cushion. Air velocities should be measured with the ventilation hood operating and the burner motor off.

(c) *Test Specimens.* (1) For each test, one set of cushion specimens representing a seat bottom and seat back cushion must be used.

(2) The seat bottom cushion specimen must be $18 \pm \frac{1}{4}$ inches ($457 \pm 3 \text{ mm}$) wide by $20 \pm \frac{1}{4}$ inches ($508 \pm 3 \text{ mm}$) deep by $4 \pm \frac{1}{4}$ inches ($102 \pm 3 \text{ mm}$) thick, exclusive of fabric closures and seam overlap.

(3) The seat back cushion specimen must be $18 \pm \frac{1}{4}$ inches ($457 \pm 3 \text{ mm}$) wide by $25 \pm \frac{1}{4}$ inches ($635 \pm 3 \text{ mm}$) high by $2 \pm \frac{1}{4}$ inches ($51 \pm 3 \text{ mm}$) thick, exclusive of fabric closures and seam overlap.

(4) The specimens must be conditioned at $70 \pm 5^\circ \text{F}$ ($21 \pm 2^\circ \text{C}$) $55\% \pm 10\%$ relative humidity for at least 24 hours before testing.

(d) *Test Apparatus.* The arrangement of the test apparatus is shown in Figures 1 through 5 and must include the components described in this section. Minor details of the apparatus may vary, depending on the model burner used.

(1) *Specimen Mounting Stand.* The mounting stand for the test specimens consists of steel angles, as shown in Figure 1. The length of the mounting stand legs is $12 \pm \frac{1}{4}$ inches ($305 \pm 3 \text{ mm}$). The mounting stand must be used for mounting the test specimen seat bottom and seat back, as shown in Figure 2. The mounting stand should also include a suitable drip pan lined with aluminum foil, dull side up.

(2) *Test Burner.* The burner to be used in testing must—

- (i) Be a modified gun type;
- (ii) Have an 80-degree spray angle nozzle nominally rated for 2.25 gallons/hour at 100 psi;
- (iii) Have a 12-inch (305 mm) burner cone installed at the end of the draft tube, with an opening 6 inches (152 mm) high and 11 inches (280 mm) wide, as shown in Figure 3; and
- (iv) Have a burner fuel pressure regulator that is adjusted to deliver a nominal 2.0 gallon/hour of #2 Grade kerosene or equivalent required for the test.

Burner models which have been used successfully in testing are the Lennox Model OB-32, Carlin Model 200 CRD, and Park Model DPL 3400. FAA published reports pertinent to this type of burner are: (1) Powerplant Engineering Report No. 3A, Standard Fire Test Apparatus and Procedure for Flexible Hose Assemblies, dated March 1978; and (2) Report No. DOT/FAA/RD/76/213, Reevaluation of Burner Characteristics for Fire Resistance Tests, dated January 1977.

(3) *Calorimeter.*

(i) The calorimeter to be used in testing must be a (0–15.0 BTU/ft²-sec. 0–17.0 w/cm²) calorimeter, accurate $\pm 3\%$, mounted in a 6-inch by 12-inch (152 by 305 mm) by $\frac{3}{4}$ -inch (19 mm) thick calcium silicate insulating board which is attached to a steel angle bracket for placement in the test stand during burner calibration, as shown in Figure 4.

(ii) Because crumbling of the insulating board with service can result in misalignment of the calorimeter, the calorimeter must be monitored and the mounting shimmed, as necessary, to ensure that the calorimeter face is flush with the exposed plane of the insulating board in a plane parallel to the exit of the test burner cone.

(4) *Thermocouples.* The seven thermocouples to be used for testing must be

$\frac{1}{16}$ - to $\frac{1}{8}$ -inch metal sheathed, ceramic packed, type K, grounded thermocouples with a nominal 22 to 30 American wire gage (AWG)-size conductor. The seven thermocouples must be attached to a steel angle bracket to form a thermocouple rake for placement in the test stand during burner calibration, as shown in Figure 5.

(5) *Apparatus Arrangement.* The test burner must be mounted on a suitable stand to position the exit of the burner cone a distance of $4 \pm \frac{1}{4}$ inches ($102 \pm 3 \text{ mm}$) from one side of the specimen mounting stand. The burner stand should have the capability of allowing the burner to be swung away from the specimen mounting stand during warmup periods.

(6) *Data Recording.* A recording potentiometer or other suitable calibrated instrument with an appropriate range must be used to measure and record the outputs of the calorimeter and the thermocouples.

(7) *Weight Scale.* Weighing Device—A device must be used that with proper procedures may determine the before and after test weights of each set of seat cushion specimens within 0.02 pound (9 grams). A continuous weighing system is preferred.

(8) *Timing Device.* A stopwatch or other device (calibrated to ± 1 second) must be used to measure the time of application of the burner flame and self-extinguishing time or test duration.

(e) *Preparation of Apparatus.* Before calibration, all equipment must be turned on and the burner fuel must be adjusted as specified in paragraph (d)(2).

(f) *Calibration.* To ensure the proper thermal output of the burner, the following test must be made:

(1) Place the calorimeter on the test stand as shown in Figure 4 at a distance of $4 \pm \frac{1}{4}$ inches ($102 \pm 3 \text{ mm}$) from the exit of the burner cone.

(2) Turn on the burner, allow it to run for 2 minutes for warmup, and adjust the burner air intake damper to produce a reading of $10.5 \pm 0.5 \text{ BTU/ft}^2\text{-sec.}$ ($11.9 \pm 0.6 \text{ w/cm}^2$) on the calorimeter to ensure steady state conditions have been achieved. Turn off the burner.

(3) Replace the calorimeter with the thermocouple rake (Figure 5).

(4) Turn on the burner and ensure that the thermocouples are reading $1900 \pm 100^\circ \text{F}$ ($1038 \pm 38^\circ \text{C}$) to ensure steady state conditions have been achieved.

(5) If the calorimeter and thermocouples do not read within range, repeat steps in paragraphs 1 through 4 and adjust the burner air intake damper until the proper readings are obtained. The thermocouple rake and the calorimeter should be used frequently to maintain and record calibrated test parameters. Until the specific apparatus has demonstrated consistency, each test should be calibrated. After consistency has been confirmed, several tests may be conducted with the pre-test calibration before and a calibration check after the series.

(g) *Test Procedure.* The flammability of each set of specimens must be tested as follows:

(1) Record the weight of each set of seat bottom and seat back cushion specimens to be tested to the nearest 0.02 pound (9 grams).

(2) Mount the seat bottom and seat back cushion test specimens on the test stand as shown in Figure 2, securing the seat back cushion specimen to the test stand at the top.

(3) Swing the burner into position and ensure that the distance from the exit of the burner cone to the side of the seat bottom cushion specimen is $4 \pm \frac{1}{8}$ inches (102 ± 3 mm).

(4) Swing the burner away from the test position. Turn on the burner and allow it to run for 2 minutes to provide adequate warmup of the burner cone and flame stabilization.

(5) To begin the test, swing the burner into the test position and simultaneously start the timing device.

(6) Expose the seat bottom cushion specimen to the burner flame for 2 minutes and then turn off the burner. Immediately swing the burner away from the test position. Terminate test 7 minutes after initiating cushion exposure to the flame by use of a gaseous extinguishing agent (i.e., Halon or CO_2).

(7) Determine the weight of the remains of the seat cushion specimen set left on the mounting stand to the nearest 0.02 pound (9 grams) excluding all droppings.

(h) *Test Report.* With respect to all specimen sets tested for a particular seat

cushion for which testing of compliance is performed, the following information must be recorded:

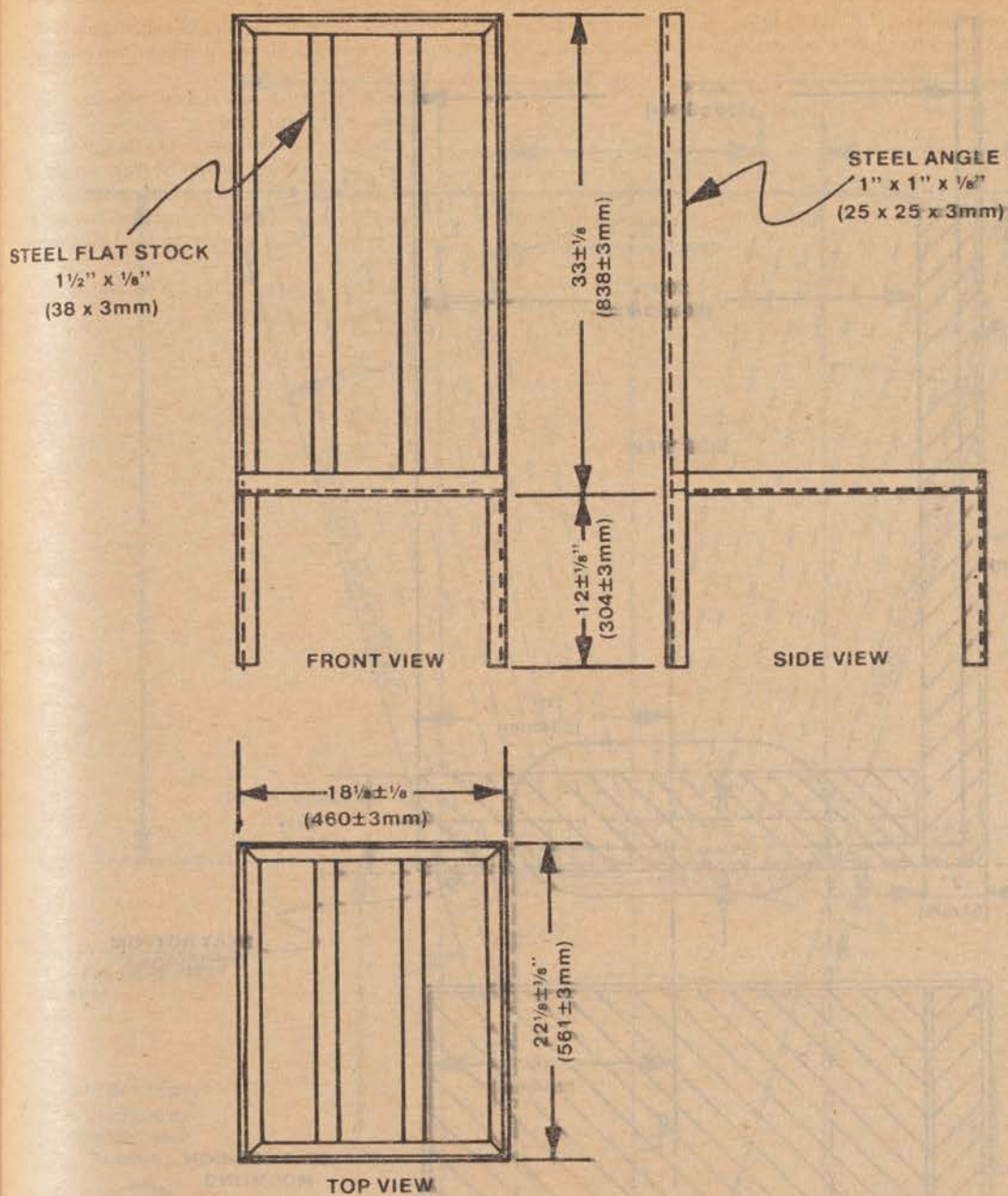
(1) An identification and description of the specimens being tested.

(2) The number of specimen sets tested.

(3) The initial weight and residual weight of each set, the calculated percentage weight loss of each set, and the calculated average percentage weight loss for the total number of sets tested.

(4) The burn length for each set tested.

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NOTE:

ALL JOINTS WELDED
FLAT STOCK BUTT WELDED
ALL MEASUREMENTS INSIDE

FIGURE 1

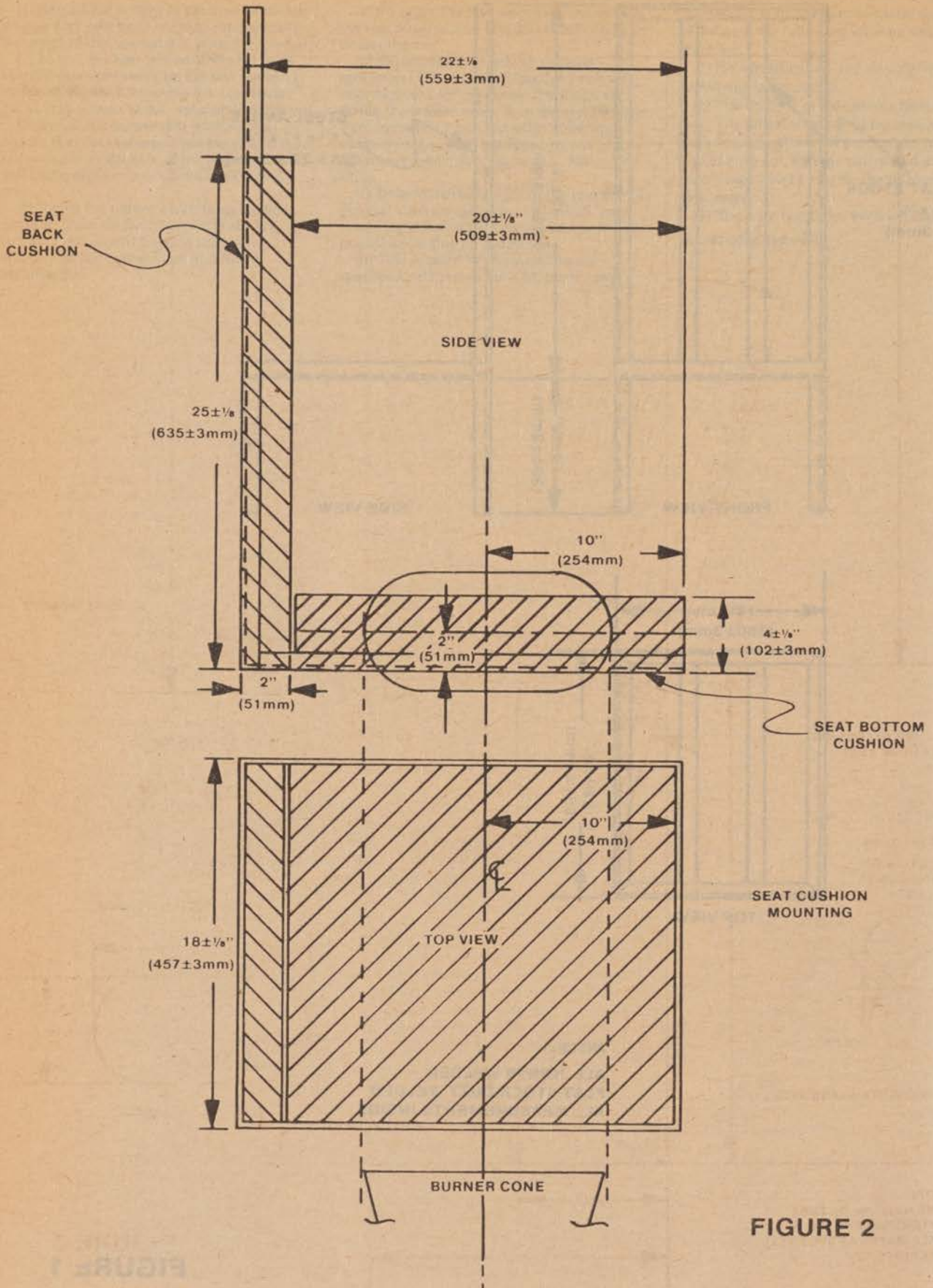
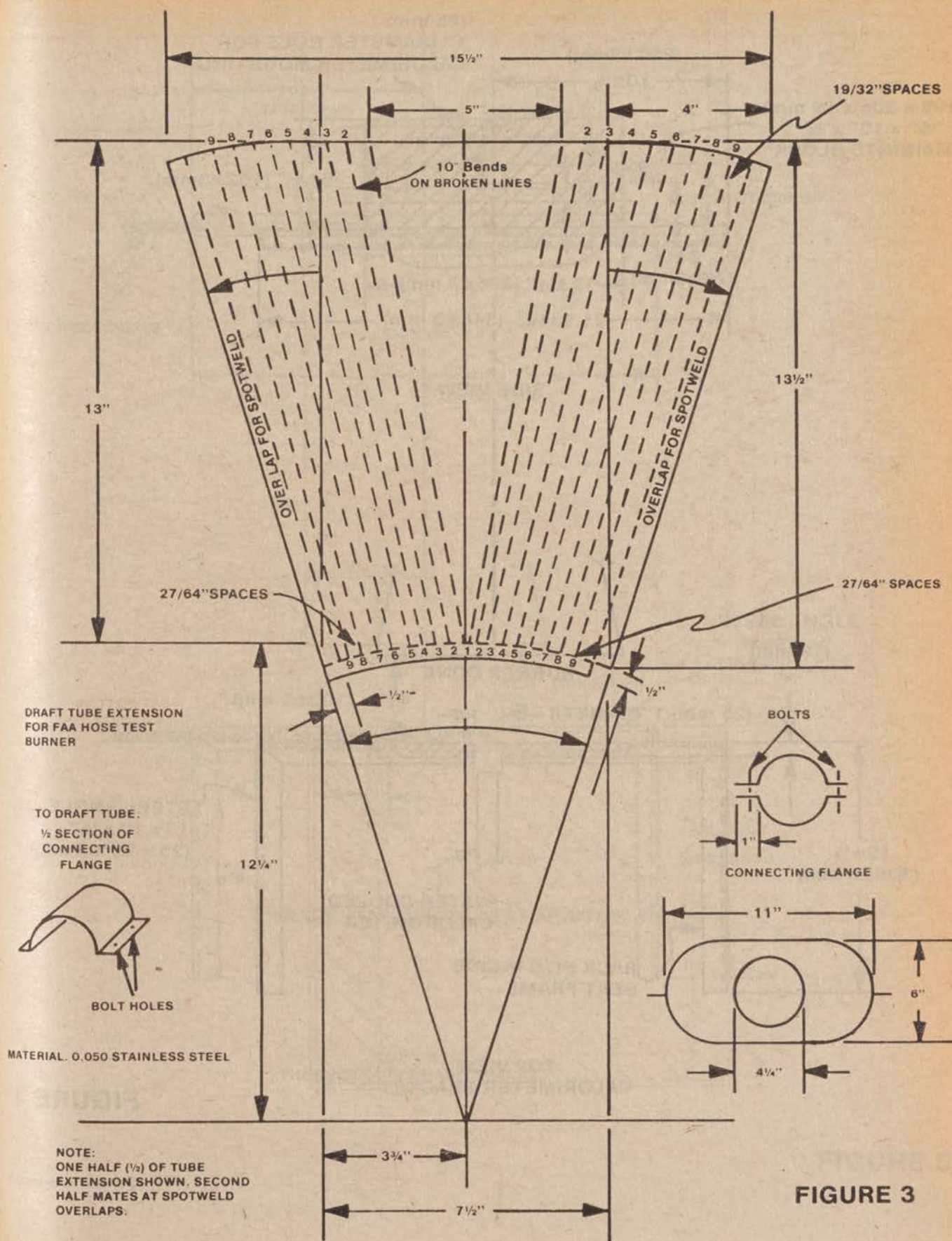


FIGURE 2



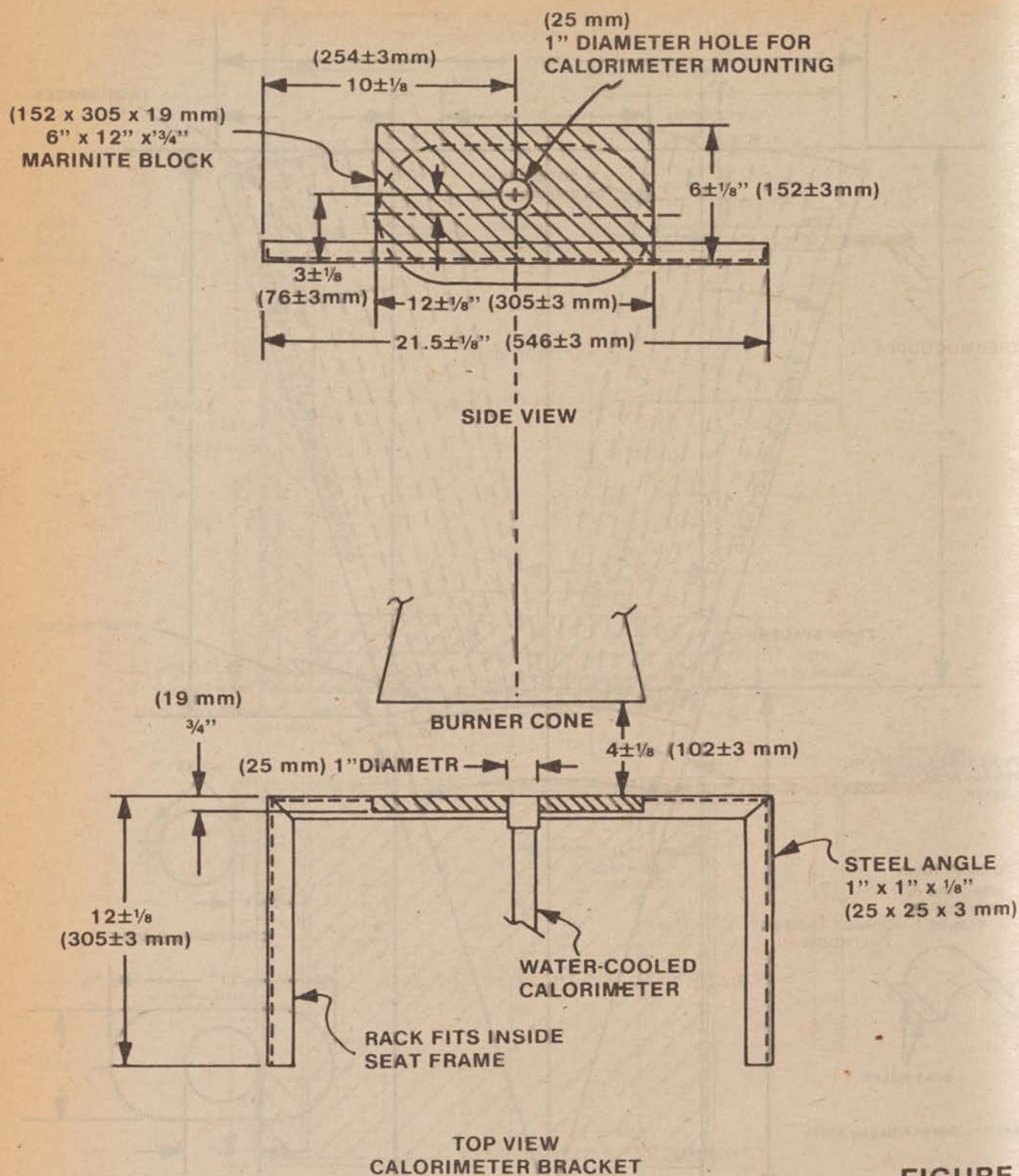


FIGURE 4

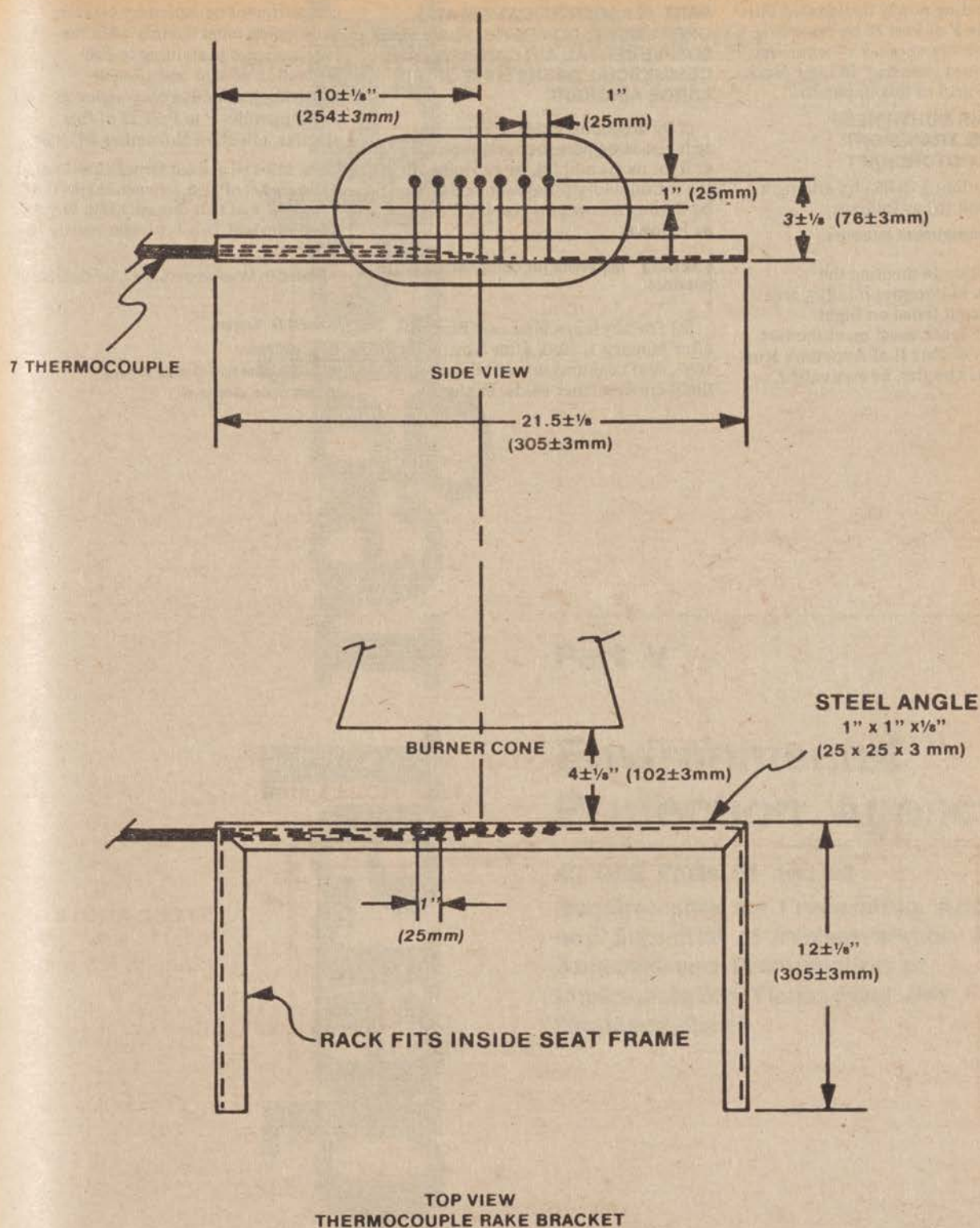


FIGURE 5

4. By amending newly designated Part I of Appendix F of Part 25 by removing the words "of this appendix" wherever they appear and inserting, in their place, the words "Part I of this appendix".

**PART 29—AIRWORTHINESS
STANDARDS: TRANSPORT
CATEGORY ROTORCRAFT**

5. By amending § 29.853 by adding a new paragraph (b) as follows:

§ 29.853 Compartment interiors.

(b) In addition to meeting the requirements of paragraph (a)(2), seat cushions, except those on flight crewmember seats, must meet the test requirements of Part II of Appendix F of Part 25 of this chapter, or equivalent.

**PART 121—CERTIFICATION AND
OPERATIONS: DOMESTIC, FLAG, AND
SUPPLEMENTAL AIR CARRIERS AND
COMMERCIAL OPERATORS OF
LARGE AIRCRAFT**

6. By amending § 121.312 by redesignating present paragraphs (a) and (b) as (1) and (2), by redesignating the introductory paragraph as (a), and by adding a new paragraph (b) to read as follows:

§ 121.312 Materials for compartment interiors.

(b) For airplanes type certificated after January 1, 1958, after November 26, 1987, seat cushions, except those on flight crewmember seats, in any

compartment occupied by crew or passengers must comply with the requirements pertaining to fire protection of seat cushions in § 25.853(c), effective November 26, 1984, and Appendix F to Part 25 of this chapter, effective November 26, 1984.

(Secs. 313, 314, and 601 through 610, Federal Aviation Act of 1958, as amended (49 U.S.C. 1354, 1355, and 1421 through 1430); 49 U.S.C. 106(g) (Revised, Pub. L. 97-449, January 12, 1983))

Issued in Washington, D.C., on October 23, 1984.

Donald D. Engen,
Administrator.

[FR Doc. 84-28294 Filed 10-23-84; 2:10 pm]

BILLING CODE 4910-13-M

Federal Register

Friday
October 26, 1984

Part V

Environmental Protection Agency

40 CFR Parts 51 and 52

Requirements for Preparation, Adoption
and Submittal of Implementation Plans;
Approval and Promulgation of
Implementation Plans; Final and
Proposed Rules

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Parts 51 and 52

[AD-FRL 2683-1]

Requirements for Preparation, Adoption and Submittal of Implementation Plans; Approval and Promulgation of Implementation Plans

AGENCY: Environmental Protection Agency (EPA).

ACTION: Final rule.

SUMMARY: EPA here reaffirms its current requirements for the inclusion of fugitive emissions in calculations of whether a source is "major" for purposes of new source review under the Clean Air Act (the "Act"). EPA proposed to delete those requirements at 48 FR 38742 (August 25, 1983). In a companion notice in the *Federal Register*, EPA is proposing to extend the requirements for inclusion of fugitive emissions to surface coal mines, is reopening the comment period on the current list of sources to which these requirements apply, and is soliciting comments on an interpretive ruling regarding the underlying statutory provisions as they relate to consideration of fugitive emissions in the modification of existing sources.

DATES: This reaffirmation takes effect on November 26, 1984. Under section 307(b)(1) of the Act, 42 U.S.C. 7607(b)(1), petitions for judicial review must be filed on or before December 26, 1984, in the United States Court of Appeals for the District of Columbia Circuit.

FOR FURTHER INFORMATION CONTACT: Kirt Q. Cox, New Source Review Section, Office of Air Quality Planning and Standards, Research Triangle Park, North Carolina 27711 (919-541-5591, FTS-629-5591).

SUPPLEMENTARY INFORMATION:

I. Introduction

EPA has various rules that regulate the construction of new stationary sources of air pollution and modifications to existing sources. In general, these rules apply only to sources and modifications that are "major." The rules define "major" in terms of annual rates of emissions, for example, 100 tons per year ("tpy"). They require the inclusion of "fugitive emissions" in quantifying emissions rate, but only for 30 listed source categories. "Fugitive emissions" are emissions that could not reasonably pass through a stack or other functionally equivalent opening.

On August 25, 1983, EPA proposed to delete entirely this requirement for the

inclusion of fugitive emissions on the grounds that it rests on an incorrect interpretation of the Act (48 FR 38742). After reviewing the comments on the proposal, however, EPA has concluded that the interpretation in question is correct. EPA, therefore, has decided to retain the requirement, but to provide a further opportunity for comment on whether the requirement should not apply to one or more of the 30 categories already listed. In a companion notice in the *Federal Register*, EPA is soliciting comment on that question. In that notice, EPA is also proposing to add surface coal mines to the list and is soliciting comment on a new interpretation of the underlying statutory provisions as they apply to modifications involving fugitive emissions.

This preamble describes the statutory and regulatory background, the comments on the August 1983 proposal, and EPA's responses.

II. Background

A. Statute

Section 110 of the Clean Air Act, 42 U.S.C. 7410, requires each State to have a plan for (1) attaining and maintaining national ambient air quality standards (NAAQS) in all areas of the country, especially in areas that have yet to meet the standards ("nonattainment areas"); and (2) preventing significant deterioration in areas not classified as nonattainment ("PSD areas"). Section 110(a)(2)(D) requires each plan ("State implementation plan" or "SIP") to contain, among other measures, a program for regulating the construction of new stationary sources and modifications, including "a permit program as required in parts C and D * * * and a permit or equivalent program for any major emitting facility * * *." Section 110(a)(2)(I) requires each SIP to contain a ban on the construction or modification of any "major stationary source" in nonattainment areas that lack a SIP that meets the requirements of Part D.

Part C of the Act, 42 U.S.C. 7470-91, specifies a permit program that applies to the construction or modification of any "major emitting facility" in any PSD area. It defines "major emitting facility" as any stationary source that either emits 100 tpy of a pollutant and belongs to one of 28 listed industrial categories or else emits 250 tpy of a pollutant.

Part D of the Act, 42 U.S.C. 7501-08, specifies a permit program that applies to the construction or modification of any "major stationary source" in any nonattainment area. It contains no definition of "major stationary source."

Section 302(j) of the Act, 42 U.S.C. 7602(j), defines both "major stationary source" and "major emitting facility" as follows:

Except as otherwise expressly provided, the terms "major stationary source" and "major emitting facility" mean any stationary facility or source of air pollutants which directly emits, or has the potential to emit, one hundred tons per year or more of any air pollutant (including any major emitting facility or source of fugitive emissions of any such pollutant, as determined by rule by the Administrator). [Emphasis added.]

B. Initial EPA Interpretation

Following the enactment of the bulk of these statutory provisions in 1977, EPA issued various regulations and guidelines that interpreted and elaborated upon them. In June 1978, EPA promulgated PSD regulations to implement Part C. The regulations appear now at 40 CFR 51.24 (1984) (the "Part 51 PSD regulations") and 40 CFR 52.21 (1984) (the "Part 52 PSD regulations"). In January 1979, EPA revised its Emissions Offset Interpretative Ruling (the "Offset Ruling"), which now appears at 40 CFR Part 51, Appendix S (1984), to conform it to Part D. Then, in April 1979, EPA issued a guideline entitled "General Preamble for Proposed Rulemaking on Approval of Revisions for Nonattainment Areas" that included guidance on the content of Part D permitting programs (see 44 FR 20372). Finally, in July 1979, EPA issued an interpretive rule on construction bans for nonattainment areas, which now appears at 40 CFR 52.24 (1984).

In each of these pronouncements, EPA assumed without discussion that the fugitive emissions of a source of modification were to be included in quantifying its emissions rate in order to determine whether it is "major" [see, e.g., 43 FR 26 382-83, 26403-04 (June 19, 1978)]. (EPA refers to these quantifications of emissions rate as "threshold applicability determinations," since they determine whether a project is subject to all the PSD or nonattainment permit requirements or the construction ban.)¹

¹ A threshold applicability determination is distinct from a pollutant applicability determination, which is a determination of which pollutant streams from a "major" source or "major" modification are subject to the substantive requirements of the regulations in question. The PSD requirements, for instance, apply to each regulated pollutant that a "major" source emits in "significant" amounts. E.g., 40 CFR 52.21(j) (1984).

EPA regarded the Part C definition of "major emitting facility" as exclusively governing the meaning of that term for PSD purposes. Since that definition does not distinguish between fugitive and nonfugitive emissions, EPA concluded that fugitive emissions are as eligible for inclusion in the threshold determinations of PSD applicability as nonfugitive emissions.

One of the consequences of this assumption was that sources of predominately fugitive emissions, such as surface coal mines, could be "major" and hence subject to new source review permit requirements or the construction ban.

C.D.C. Circuit Interpretation

In December 1979, the U.S. Court of Appeals for the District of Columbia Circuit held that EPA may require the inclusion of fugitive emissions in threshold applicability determinations for projects in a particular category only if it has first satisfied the rulemaking requirement of section 302(j) as to that category (see *Alabama Power Company v. Costle*, 636 F.2d 325, 369). Unfortunately, the court did not specify what it thought EPA had to consider in such a rulemaking. It did say, however, that:

EPA's regulation of fugitive emissions has been of special concern to the mining and forestry industries which contend, without serious opposition, that they are incapable of meeting the strict limitations on the emission of particulate matter set by the PSD provisions * * *

The legislative history of this rulemaking provision [Section 302(j)] is sparse, but it may well define a legislative response to the policy considerations presented by the regulation of sources where the predominant emissions are fugitive in origin, particularly fugitive dust. Whatever the motivation of the "rule" provision of 302(j), its existence is unmistakable. Even if the origin of this provision is fortuitous, the provision may well be welcomed as serendipitous, for it gives EPA flexibility to provide industry-by-industry consideration and appropriate tailoring of coverage. [Id. (emphasis added).]

D. Revisions in Response to Alabama Power

In response to this holding, EPA proposed amendments to both the PSD and nonattainment regulations that would exclude fugitive emissions from threshold applicability determinations except as to 30 listed categories of sources [e.g., 44 FR 51924, 51948 (September 5, 1979)]. Twenty-eight of the categories correspond generally to the categories in the Part C definition of "major emitting facility"; the remaining two categories encompassed any source

subject on August 7, 1980, to an emission standard under either Section 111 or 112 of the Act, 42 U.S.C. 7411 or 7412. Surface coal mines were not among the 30 categories [Id. at 51931].² EPA explained that it was proposing to require the inclusion of fugitive emissions as to those categories because (1) emissions from sources in those categories deteriorate air quality regardless of how they emanate, and (2) the Agency's experience in quantifying fugitive emissions from such sources was in general greater than its experience in quantifying fugitive emissions from other sources [Id.].

During the comment period, various industry representatives attacked this test as too undemanding to satisfy the court's opinion. They contended that section 302(j) obliges EPA to determine with some precision and through rulemaking that reasonably satisfactory methods for the measurement, modeling, and control of fugitive emissions³ from a particular category of sources exist before EPA requires those emissions to be included in threshold applicability determinations [45 FR 52676, 52692 (col. 2) (August 7, 1980)]. Indeed, some contended that EPA had to promulgate such methods in the form of regulations [Id. at 52690 (col. 3)].

In its response to comments, EPA pointed out that, according to the D.C. Circuit, Congress intended the substantive PSD requirements to be applied "with equal force" to the fugitive and nonfugitive emissions of any facility that would be "major" by virtue of its nonfugitive emissions, even if EPA has yet to determine that there are reasonably satisfactory measurement, modeling, or control methods for the fugitive emissions [Id. at 52691 (quoting 636 F.2d at 369)].⁴ Thus,

²EPA said it would consider later whether to add strip mines and other sources to the list [Id. (col. 2)].

³The phrase "measurement of fugitive emissions" refers in this notice to the quantification of the rate at which pollutants emanate "fugitively" from a particular activity at a source, for instance, the rate at which particulate matter emanates from an unpaved road at a surface mine due to truck traffic. The phrase "modeling of fugitive emissions" refers to the prediction through mathematical models of the concentrations of a pollutant in the ambient air that would result from fugitive emissions of the pollutant.

⁴The relevant language from the court's opinion is as follows: The term of section 165, which detail the preconstruction review and permit requirements for each new or modified "major emitting facility" apply with equal force to fugitive emissions and emissions from industrial point sources * * *

EPA is correct that a major emitting facility is subject to the requirements of section 165 for each pollutant it emits irrespective of the manner in which it is emitted. However, a source emitting large quantities of fugitive emissions may remain outside the definition of major emitting facility and thus may not be subject to the requirements of section 165. [Emphasis added.]

Congress consigned any problems of measurement, modeling, and control in those cases to each individual permit proceeding for resolution by the permitting authority. EPA reasoned that if Congress were willing to accept case-by-case resolution of such problems by the permitting authority in those circumstances, it must have been willing to do the same for projects that would be "major" only if their fugitive emissions were counted [Id. at 52691, 52692]. Hence, the Agency took the position that section 302(j) obliges it simply to afford the public with an opportunity to oppose the inclusion of fugitive emissions as to particular category, once EPA has determined at the proposal stage that sources in the category could degrade air quality significantly:

EPA * * * believes that the purpose of the rulemaking under section 302(j) is to afford members of affected categories of sources an opportunity to comment on the Administrator's determination to include fugitive emissions in the threshold calculation and to allow them to present factual or policy arguments in support of claims that it would not be appropriate to do so. [Id. at 52690 (col. 3) (emphasis in original).]

EPA did not specify the grounds on which it thought a commenter could oppose inclusion of fugitive emissions. But the possible candidates include adverse economic or social impacts relative to the benefits associated with the listing of the applicable category. EPA in harmony with its basic reasoning said that it thought that the adequacy of measurement and modeling methods is not by itself "critical in determining whether, as a general policy matter, it is appropriate to include fugitive emissions in the threshold calculations" [Id. at 52692 (col. 2)].

In sum, EPA's position was that section 302(j) requires it to determine only that (1) the sources in category could degrade air quality significantly and (2) there were no unreasonable costs compared to the benefits associated with listing the category that commenters raised during the comment period. If no commenter raised an objection, then EPA would have to make only the first determination.

EPA concluded finally that the rulemaking it was conducting had afforded sources the opportunity to comment on the proposed inclusion of fugitive emissions in their threshold calculations [Id. at 52961]. Hence, in August 1980, it promulgated the substance of the amendments it had proposed [e.g., 45 FR 52739].⁵

⁵EPA simultaneously promulgated a wide array of other changes to the various new source review

Continued

EPA, however, put the changes into a different form. The new provisions on their face require fugitive emissions to be included in threshold applicability determinations for any project, but then exempt from the relevant PSD or nonattainment requirements any project that (1) would be "major" only if fugitive emissions were included and (2) does not belong to one of the 30 categories [e.g., 40 CFR 52.21 (b)(4), (i)(4)(vii) (1981)].

E. Industry Challenges

In December 1980, the American Mining Congress and various individual mining companies (collectively, "AMC") petitioned EPA for reconsideration of the new PSD provisions. AMC pointed out that, even though the provisions would exempt a mining operation that would be "major" only if fugitive emissions were taken into account for the PSD permit requirements, nevertheless they could affect such an operation adversely in other ways.⁶ AMC also observed that the preamble to the regulations strongly indicates that EPA did not intend these results [see Petition for Reconsideration of Regulations Relating to the Prevention of Significant Deterioration of Air Quality, Part I (December 1, 1980) hereinafter, "AMC Petition for Reconsideration"]].

In a letter dated January 19, 1981, EPA granted the AMC petition. The Agency confirmed that it intended to establish that any project that would be "major" only if fugitive emissions were taken into account is not to be considered "major" for any PSD purpose, unless the project belongs to one of the 30 listed categories. EPA agreed to amend the regulations to conform then to that intention.

In late 1980, AMC and other industry organizations (collectively, the "industry petitioners") petitioned the D.C. Circuit to review the provisions that require the fugitive emissions of projects in the 30 listed categories to be taken into account in threshold applicability determinations. These challenges were subsequently consolidated into

regulations in effect at the time: not only the Part 51 and 52 PSD regulations, the Offset Ruling, and the construction ban, but also 40 CFR 51.18(j), which set forth the requirements of the Part D permit program and which EPA had first promulgated in May 1980 (45 FR 31307).

EPA did not include strip mines on the list of 30 categories, although the Sierra Club in its comments had argued for their inclusion.

⁶For example, such an operation would consume increment even before the baseline date, if construction on it commenced after January 6, 1975 [see 40 CFR 52.21(b)(13)(ii)(a) (1981)].

Chemical Manufacturers Association ("CMA") v. EPA (No. 79-1112).⁷

The industry petitioners argued that EPA, before it established those provisions, should have considered the problems of measuring, modeling, and controlling fugitive emissions that are peculiar to each category and then provided—in the words of the *Alabama Power* opinion—"appropriate tailoring of coverage." They also contended that the Act required the Agency to consider, on an industry-by-industry basis, the social, economic, health, and welfare impacts of including fugitive emissions in threshold applicability determinations. They suggested that EPA could decline to require the inclusion of fugitive emissions as to a particular category on the ground that growth in that industry was important to the economy and that the emissions posed low risks to human health and welfare. Finally, the industry petitioners asserted that EPA entirely failed to meet those requirements of the Act [see Petitioners Brief on Fugitive Emissions and Certain other Issues, at 12-19 (February 11, 1981) (hereinafter, "Fugitive Emissions Brief")].

In June 1981, EPA began negotiations with the industry petitioners to settle the issues relating to fugitive emissions in the *CMA* case. In February 1982, EPA entered into a settlement agreement with these petitioners in which it agreed to propose to delete the requirement for including fugitive emissions and to take final action on that proposal. Subsequently, the court granted a stay of the case pending implementation of the agreement.

F. D.C. Circuit Decision in *Duquesne Light*

In January 1983, the D.C. Circuit issued an opinion that is relevant here on EPA's noncompliance penalty regulations under section 120 of the Act (*Duquesne Light Company v. EPA*, 698 F.2d 456). The extent of liability for those penalties depends in large measure on whether a source qualifies as a "major stationary source," which is also defined by Section 302(j). The noncompliance penalty regulations simply required the inclusion of fugitive emissions in threshold applicability determinations to the extent they were "regulated by the applicable state implementation plan" [40 CFR 66.3(j)(1981)]. Industry challenged this requirement as failing to satisfy the

⁷The Sierra Club challenged the apparent decision to postpone action on whether to list strip mines. The court considered this challenge separately from the challenges in *CMA*.

rulemaking requirement in section 302(j). They asserted:

To properly notify sources how emissions will be calculated requires the formal promulgation of measurement, modeling, or control techniques, or guidelines for determining the categories to which fugitive emissions will apply and the basis for quantifying such emissions.

EPA has not complied with this Court's command to "provide industry-by-industry consideration and the appropriate tailoring of coverage" [Joint Brief for Industry Petitioners on Applicability of the Regulations, at 48-49 (April 26, 1982)].

The court responded as follows:

EPA's treatment of fugitive emissions is * * * reasonable. Section 120 penalties against major stationary sources are to be assessed for violations of state SIP's. The use of SIP's to determine whether fugitive emissions should be included in calculating a source's potential to emit reasonably links the noncompliance penalties against major sources with the SIP's that give rise to their assessment.

Moreover, EPA has engaged in the rulemaking required for inclusion of fugitive emissions in the calculation of whether a source is major. [See § 302(j)]. In promulgating the PSD regulations, EPA assumed that the rulemaking requirement was inapposite. Here, by contrast, EPA followed SIP regulations in determining whether to include fugitive emissions. As we emphasized in *Alabama Power*, the purpose of the rulemaking requirement may have been to enable EPA to tailor the inclusion of fugitive emissions to particular industrial conditions. Adoption of a SIP involves an exploration of whether industrial conditions in the state warrant limiting fugitive emissions from a particular source. EPA's reliance on the SIP itself to determine whether to include fugitive emissions in the calculation of a source's potential to emit thus met the statutory rulemaking requirement, and we affirm that action. [698 F.2d at 474-75].

G. EPA Proposal

To meet the commitments on fugitive emissions that EPA made to AMC in January 1981 and to industry petitioners in February 1982, EPA proposed certain amendments to its regulations on August 25, 1983 (48 FR 38742). The main effect of these amendments would be (1) to delete the current requirements for including fugitive emissions in threshold applicability determinations, and (2) expressly to exempt from all substantive requirements applicable to "major" projects any project that would be "major" only if its fugitive emissions were included.

In the preamble to the proposal, EPA stated its "preliminary conclusion" that it had misinterpreted section 302(j) when it promulgated the current requirements

and hence had failed to go through the necessary rulemaking. EPA identified two new interpretations of how the rulemaking requirement of section 302(j) was to be conducted. One was that:

[t]he parenthetical [in section 302(j)] obliges EPA, before it may require the inclusion of fugitive emissions in threshold applicability determinations for a particular Clean Air Act program and a particular category of sources, only to (1) identify those problems the sources would encounter in that program that are specifically due to the fugitive nature of their emissions, and (2) determine that reasonable solutions to those problems exist. For the PSD and nonattainment new source review programs and some source categories, those problems may include problems of measurement, modeling, and control [48 FR 38744-45].

The second interpretation was that:

EPA, before it may require the inclusion of fugitive emissions in threshold applicability determinations [for a particular category of sources], need determine only that reasonable solutions exist for the problems of measurement that are endemic to the fugitive emissions from those sources [48 FR 38745 (col. 1)].

EPA said that it viewed these interpretations as stronger than the one it had adopted in 1980, the one industry had espoused in its brief, or the one that the Natural Resources Defense Council ("NRDC") raised in a September 1982 letter. The NRDC interpretation was that the parenthetical merely requires EPA to identify those sources that are substantial emitters of fugitive emissions [48 FR 38745 (col. 2-3)]. EPA asked commenters, in commenting on these various interpretations, to take the D.C. Circuit decision in *Duquesne Light* into account [*Id.* (col. 3)].

Another effect of the amendments EPA proposed would be to allow credit for net decreases in fugitive emissions in netting calculations under the definition of "major modification," even if EPA had yet to go through the necessary rulemaking for the source in question.⁵

⁵Specifically, EPA proposed to delete the current exclusion for projects that fall outside the 30 categories and to add a new paragraph to the definitions of "major stationary source" and a similar paragraph to the definition of "major modification." This first paragraph would provide that the "fugitive emissions of a stationary source shall not be included in determining for any of the purposes of [the regulations in question] whether it is a major stationary source, unless the source belongs to one of the following categories of stationary sources: [Reserved]" [See, e.g., 48 FR 38753 (col. 2) (Section A(1))]. The second paragraph would provide that "[a]ny net increase in fugitive emissions from a change at a stationary source shall not be included in determining for any of the purposes of [the regulations in question] whether the change is a major modification, unless the source belongs to one of the following categories of stationary sources: [Reserved]" [See, e.g., 48 FR 38753 (col. 3) (Section A(4))].

EPA observed that disallowance of credit for net decreases "could result in a company having to obtain a permit [for a source alteration], but not having to satisfy any substantive requirements," and concluded that Congress could not have intended that [48 FR 38746].

In the preamble, EPA recognized that some environmentally significant projects that now would be subject to PSD or nonattainment requirements would escape those requirements if EPA were to make the proposed amendments final before completing the necessary section 302(j) rulemaking. In view of this, EPA said that, if it made the amendments final, it would probably not do so until it had completed the necessary rulemaking as to those projects [48 FR 38747 (col. 1)].⁶

III. Comments

The commenters on the proposal addressed mainly the various interpretations of section 302(j) that EPA had outlined. They also gave views on *Duquesne Light*, the crediting of net decreases in fugitive emissions under the definition of "major modification," the postponement of deletion pending the necessary rulemaking, and the inclusion of fugitive emissions in pollutant applicability determinations. This section summarizes the material comments in each of those areas.

A. Comments Favoring the Industry Interpretation

Many commenters supported roughly the interpretation industry had advanced in its briefs in the *CMA* case. They agreed that section 302(j) requires EPA to conduct a rulemaking to ascertain that reasonable techniques exist for measuring, modeling, and controlling fugitive emissions for each source category. Many commenters further contended that even if emissions from a source can be measured and modeled, there is little point in subjecting the source to PSD review if there is no economically and technically reasonable control methods.

Central to these arguments was *Alabama Power's* observation that section 302(j) contemplates a

⁶The day after the publication of this proposal, August 26, 1983, the D.C. circuit issued its decision in *Sierra Club v. EPA*, the challenge to EPA's postponement of a decision on whether to add strip mines to the list of 30 categories. The court remanded the postponement, ruling that EPA under the logic of its 1980 action appeared to have no good reason for listing the 30 categories but not strip mines (715 F.2d 653). EPA subsequently agreed, and committed to propose to list or not to list strip mines. The court then ordered EPA to propose one way or the other by a specific date. In a companion notice in the *Federal Register*, EPA is proposing to list strip mines.

"legislative response to policy considerations" and gives "flexibility to provide industry-by-industry consideration and the appropriate tailoring of coverage." These commenters viewed such language as requiring EPA to engage in a broad rulemaking, not one limited to consideration of a single technical factor, such as measurement, in disregard of other considerations, such as modeling and control techniques, and important social and economic factors.

Finally, representatives of the mining industry submitted extensive comments on why fugitive dust emissions from mines should not be included in threshold applicability determinations. AMC said that, under the current definition of particulate matter, it would be impossible to permit any but the smallest new or modified mines if mines were brought under the PSD regulations, even if mining operations applied BACT, and even though their emissions present no substantial health or welfare concerns. It would be impossible, AMC asserted, because the mines would cause violations of the PSD increments for particulate matter.

B. Comments Favoring EPA's First Interpretation in the Proposal

EPA's first interpretation of section 302(j) was that it obliges the Agency, before it includes fugitive emissions in threshold applicability determinations, only to (1) identify those problems that sources would encounter in the program in question that are specifically due to the fugitive nature of emissions, and (2) determine that reasonable solutions to those problems exist. One commenter expressly agreed with this interpretation, stating that "emissions must be quantifiable and reasonable solutions must exist." Another commenter stated that its support of EPA's proposal was contingent on EPA's ability to actually resolve within some reasonable time the problems arising from the inclusion of fugitive emissions. This commenter noted that health and welfare effects occur regardless of whether pollutants are emitted from stacks or are fugitive.

C. Comments Favoring EPA's Alternative Interpretation

As noted above, an alternative interpretation that EPA proposed was that section 302(j) requires EPA to determine only that reasonable solutions exist for problems of measurement that are endemic to the fugitive emissions from a source category before it may require inclusion

of fugitive emissions in threshold applicability determinations.

A State agency strongly supported this interpretation, noting that "the only real difference between fugitive emissions is in the degree of difficulty in measuring emissions rates." This commenter stated that once emission levels are known, there is no important difference in either controlling or modeling fugitive emissions. Modeling fugitive emissions, this commenter stated, is often simply a matter of including deposition factors in the models in order to account for the settling of larger particles.

D. Comments Favoring EPA's 1980 Interpretation

While no commenter directly focused on EPA's 1980 interpretation, several did offer general support for it. For example, the San Diego Air Pollution Control District concluded that Congress did not have in mind the "cumbersome administrative process" that the industry and the proposed EPA interpretations would entail. The District concluded that

"Congress * * * provided EPA with the flexibility to subject fugitive emissions to the same requirements as those for nonfugitive emissions if that is deemed appropriate." In addition, the California Air Resources Board expressed support for the existing regulations and recommended that EPA begin work to add to the current list of 30 categories for which fugitive emissions are known to be significant. Other commenters, while not expressly supporting the approach taken in the 1980 rulemaking, strongly supported retention of the coverage of fugitive emissions that it provided. These commenters, such as the Association of Local Air Pollution Control Officials, also generally stressed that "[f]ugitive emissions represent a very significant component of total air pollution emissions for many industrial categories * * *," and that these fugitive emissions have as great an impact on health and welfare as stack emissions.

E. Comments Favoring the NRDC Interpretation

Many commenters favored the NRDC interpretation, which is that section 302(j) requires EPA merely to identify those sources that are substantial emitters of fugitive emissions. They contended that to exclude fugitive emissions from threshold applicability determinations would have substantial adverse air quality effects. According to these commenters, section 302(j) performs a sorting function, telling permitting agencies on a category-by-category basis which sources must

count fugitive emissions and which need not. The commenters noted that there is nothing in the Act's legislative history that would require a more complicated test. Since Congress was very specific in detailing permit processes, as in sections 165 and 173, it is highly unlikely that Congress, by use of the unadorned word "rule" in section 302(j), intended to establish difficult hurdles for EPA to jump before requiring sources to account for great amounts of fugitive emissions. The only legislative comment on the parenthetical in section 302(j) is the House Report which says simply that "the major stationary source definition is clarified to indicate inclusion of major sources of fugitive emissions. Last year's bill was unclear in this respect." This reflects Congress' appreciation that fugitive emissions, no less than stack emissions, are real pollution.

NRDC added that interpretations that would require EPA to do more than conclude that fugitive emissions can be measured for a source category have absolutely no support in the Act, since section 302(j) relates only to one issue, whether a source emits more than 100 tons per year. Modeling, control technology, and economic and social impacts have nothing to do with this, the commenter noted, and indeed EPA has properly left room for handling the measurement issue in allowing sources to make hardship determinations at the applicability stage.

In rebuttal comments, the American Petroleum Institute (API) criticized NRDC's interpretation on the grounds that it (1) makes the rulemaking requirement of section 302(j) meaningless; (2) violates *Alabama Power's* construction of section 302(j); (3) fails to recognize that the Act distinguishes between fugitive and stack emissions; (4) would unreasonably preclude consideration of measurement, modeling, and control issues which are necessary to apply the PSD requirements and can best be dealt within in the context of national rulemakings rather than individual permit proceedings where individual source owners cannot marshal the same resources and broad-based input; and (5) would effectively eliminate the "impossibility of compliance" criterion sanctioned by *Alabama Power*.

F. Interpretation of Duquesne Light

Commenters who considered *Duquesne Light* differed in their view of the significance of that court's holding according to the interpretation of section 302(j) that then endorsed.

AMC argued that *Duquesne Light* is not controlling here, despite its "superficial similarity," because the

fugitive emissions issue in that case was minor and peripheral. The purpose of including fugitive dust emissions in applicability determinations under Section 120 was simply to impose penalties on companies that it did not comply with State fugitive emissions requirements. But the consequences of including fugitive emissions in PSD determinations, AMC argued, are far more significant, amounting in some cases to a bar on new sources.

Another commenter stated that *Duquesne Light* reaffirms that section 302(j) rulemaking allows EPA to tailor inclusion of fugitive emissions to particular industry conditions, but stated that the same outcome should not necessarily follow for PSD as for the very different section 120 program.

Another commenter stated that *Duquesne Light* supports a view of section 302(j) that requires EPA to determine that "reasonable controls" exist for fugitive source categories. The court limited its holding to sources subject to SIP requirements, which, according to the commenter, generally entail only reasonable controls.

On the other hand, one commenter stated that EPA's proposal goes far beyond any requirement imposed under *Duquesne Light* by placing a heavy burden on EPA both to identify industry fugitive emissions and to come up with reasonable solutions to the problems of modeling and measurement before requiring inclusion of fugitive emissions in threshold applicability determinations. Similarly, NRDC stated that *Duquesne Light* rejected precisely the contentions industry makes in this rulemaking, and upheld the same type of simple sorting determinations that NRDC says are all that section 302(j) requires.

G. Crediting of Decreases in Fugitive Emissions

Most commenters opposed EPA's proposal to credit net decreases in fugitive emissions, but not net increases. These commenters agreed that the proposal in this respect is "anomalous," and stated that increases and decreases should be treated similarly.

One State agency stated that both increases and decreases in fugitive emissions should be taken into account and that it was feasible to quantify most fugitive emissions. Another State agency, in noting that logic would require equal treatment of fugitive emissions increases and decreases, stated that the aim of section 302(j) is not to relax requirements with respect to nonfugitive emissions.

Several commenters stated that EPA should follow the terms of the settlement agreement, which provided for equal treatment of increases and decreases.

The Department of the Interior (DOI) commented that:

EPA's rationale for allowing credit for decreases in fugitive emissions while excluding increases in determining whether a source is major is flawed. EPA states that if both increases and decreases in fugitive emissions are excluded in determining if a source is a major modification, the result could be that a company might be required to obtain a permit, but not have to satisfy any substantive requirements, if the sum of contemporaneous increases and decreases are less than the values considered "significant" under 40 CFR 52.21(b)(23)(i). * * * Although this could occur in some instances, it is not necessarily true for all situations. For example, this is not true in the case when the sum of contemporaneous fugitive increases and nonfugitive increases exceed fugitive decreases by more than the specific significant pollutant levels. The following example illustrates this point:

	Nonfugitive VOC (TPY)	Fugitive VOC (TPY)
First modification.....	+39	+2,000
Second modification.....	+2,039	-2,000
(Contemporaneous with first modification).....	+2,078	0

If increases in fugitive emissions are not included in the PSD applicability determination, the first modification, although increasing emissions by 2039 TPY would be exempt from PSD review (significant VOC level is 40 TPY). The second modification would also be exempt from review if the fugitive decreases are credited. (Note that under current EPA policy, if the sum of increases and decreases resulting directly from a proposed alteration is not "significant," then the alteration cannot be a "major modification," regardless of other contemporaneous emission increases.) However, if fugitive decreases could not be credited, the second modification would trigger the substantive PSD requirements by virtue of a net 2078 TPY increase in contemporaneous emissions. Suppose further that a different source proposes a modification resulting in a 40 TPY increase in nonfugitive VOC emissions. This modification, assuming no contemporaneous decreases, would require PSD review, whereas the first modification emitting 2039 TPY would require no PSD review whatsoever under the proposed revision. These examples illustrate the inconsistency and inequity of crediting decreases while ignoring fugitive emission increases. [Footnote omitted.]

DOI agreed that creditable decreases in fugitive emissions should be allowed, but only if increases are also counted and the decreases result from an enforcement control strategy. It follows

logically, DOI stated, that any source category using quantifiable decreases in fugitive emissions should be held liable for any fugitive emissions increase quantified in the same way. DOI noted that past State permitting has produced much information in estimating fugitive emissions from various source categories. Finally, DOI noted that the EPA proposal would encourage piecemeal project development since a source, by breaking a project in two, could get the fugitive sources exempt under the new provisions and then apply for its nonfugitive sources, thereby eliminating review of the fugitive emissions.

In supporting DOI's comments, another commenter noted that it is important that the permit continue to be the authoritative record of the current obligations of each major source because permits are the only reference point for (1) enforcement by EPA and the public; and (2) modeling by subsequent permit applicants in areas to assess the cumulative impact of all PSD sources on increments, NAAQS, and air quality related values of Class I areas. Moreover, this commenter stated, the EPA scenario illustrates why its proposal not to count increases in fugitive emissions is faulty; since Congress did not intend meaningless permits, then it must have intended fugitives to be counted, both increases and decreases.

The American Iron and Steel Institute (AISI) commented that EPA's proposal, though perhaps lacking in symmetrical logic, is justifiable as a practical, realistic interim approach to a short-term problem and, as such, is a reasonable exercise of EPA's discretionary authority. AISI noted that the superficially inconsistent treatment of fugitive emissions increases and decreases is temporary, and will last only until EPA undertakes category-by-category 302(j) rulemaking. In addition, AISI stated that by allowing credit for decreases, EPA provided a strong incentive for companies to develop fugitive emissions measuring, modeling, and control techniques, and this added experience gained during the interim period may aid EPA in making section 302(j) category-by-category determinations.

H. Future Rulemaking on Fugitive Emissions

EPA stated that it planned, if it were still inclined after reviewing comments to delete the current requirements, to withhold final deletion until it completed the necessary rulemaking to reestablish the requirement as to at least

some of the 30 categories presently listed.

Many commenters disagreed with this approach and stated that EPA should delete the 30 source categories in accordance with the CMA settlement agreement. Some stated that EPA needed to delete the 30 categories now because, under the holding in *Alabama Power*, it simply had no authority to keep them in effect until after it had instituted industry-by-industry rulemaking. API stated that NRDC grossly overestimated the impact of delisting fugitive emissions until completion of an adequate rulemaking.

NRDC stated that while this proposal was an improvement, it had two concerns: (1) That EPA had not indicated how many or which categories are encompassed by the phrase "at least some," and (2) that the entire exercise would be a waste of time since it is clear that EPA will be able to make determinations that fugitive emissions should be included for nearly every source category.

DOI supported withholding immediate deletion because it would avoid the permitting loophole for large sources of fugitive emissions that could adversely affect Class I areas such as national parks.

Other commenters also supported the EPA proposal to avoid confusion, to avoid a rush of applications for permits during the time between this amendment and promulgation of the section 302(j) list, and to avoid the incongruity of reviewing sources subject to PSD under different sets of rules before and after section 302(j) rulemaking.

I. Inclusion of Fugitive Emissions in Pollutant Applicability Determinations

Two commenters stated that, as with threshold applicability determinations, EPA should not include fugitive emissions in pollutant applicability determinations before acting under section 302(j). API stated that applicability determinations, whether for an entire source or an individual pollutant, involve the same function: each examines emissions at a particular stage in the process to determine whether PSD review will be triggered. Any problems relating to quantification, control, and increment compliance which arise in such an inquiry—and are cognizable in section 302(j) rulemakings—will exist irrespective of the context in which fugitives are being considered.

IV. Response to Comments

A. Interpretation of Section 302(j)

EPA has concluded that its 1980 interpretation regarding the nature of the section 302(j) rulemaking requirement was correct. Congress intended that EPA make only two determinations before it required fugitive emissions to be included in threshold applicability determinations for sources in a particular category: (1) That the sources have the potential to degrade air quality significantly and (2) that no unreasonable socioeconomic impacts relative to the benefits would result from subjecting the sources to the relevant PSD or nonattainment programs. Thus, a finding that the sources in a category pose a threat of significant air quality degradation is enough to propose listing, though EPA must consider broader-based objections raised by commenters during the rulemaking before taking final action.¹⁰

The intention behind section 302(j) is difficult to discern. On the one hand, the "by rule" requirement plainly evidences an intention (1) to shift the policy decision on whether new sources of predominantly fugitive emissions should be subject to PSD and nonattainment review to EPA, and (2) to ensure that EPA makes that decision only after it hears from the general public and the target industries. Contrary to the contentions of NRDC, it is unlikely that Congress intended EPA to determine merely that the sources in a category are substantial emitters, since to determine that requires little expertise and public participation.

On the other hand, the statute and the legislative history strongly suggest that Congress did not intend to require EPA

to shoulder the burden of intense, industry-by-industry rulemaking. First, as EPA observed in 1980, the statute does not expressly require EPA to go through rulemaking to require the inclusion of fugitive emissions in pollutant applicability determinations. In fact, section 165(a), 42 U.S.C. 7575(a), by its own terms requires the inclusion of fugitives in such determinations. In addition, the committee report on the bill that first contained the "by rule" requirement completely ignores it, saying only that "the 'major stationary source' definition is clarified to indicate the inclusion of major sources of fugitive emissions (last year's bill was unclear in this respect)." H.R. Rep. No. 95-294, 95th Cong., 1st Sess. at 4 (1977). Similarly, the conference report completely fails to mention the requirement, even though it purports to summarize the definition of "major stationary source" in the House bill. H.R. Report No. 95-564, 95th Cong., 1st Sess. at 192 (1977). If Congress had intended to require the sort of rulemaking effort that industry contends it did, it would have shown at least some recognition of the intensity and massiveness of that effort.

The interpretation of section 302(j) that EPA espoused in 1980 reasonably harmonizes these discordant Congressional signals. A determination by EPA that the sources in a category pose a threat of significant air quality degradation in effect establishes a presumption that the sources should be subject to PSD and nonattainment review. This is because the primary purpose of that review is to prevent the construction of new projects that would interfere materially with timely attainment and maintenance of NAAQS and PSD increments. Commenters then may seek to rebut this presumption by producing a record that unreasonable social or economic costs relative to the anticipated benefits would occur if PSD or nonattainment review were applied to a particular category of sources.¹¹ In the end, it is EPA's role to resolve any clash of views. Thus, EPA engages in a deliberative process that can go far beyond the virtually ministerial decision-making that NRDC advocates, but that need go beyond it only if and to the extent that there are legitimate, cost/benefit concerns. Under this interpretation, section 302(j) functions as a useful "safety valve," while at the

same time minimizing the expenditure of Agency resources.

This "safety valve" interpretation not only harmonizes the signals from Congress, it also is consistent with the relevant case law. It affords EPA precisely the "flexibility to provide industry-by-industry consideration and appropriate tailoring of coverage" that Judge Leventhal had in mind in *Alabama Power*. In addition, it assures that EPA will establish as to each category of sources that rational nexus between the listing and the purposes of the program in question that the D.C. Circuit found essential in *Duquesne Light*. Moreover, the rulemaking potentially "involves an exploration of whether industrial conditions . . . warrant limiting fugitive emissions from a particular source." *Duquesne Light Company v. EPA*, 698 F.2d at 475.¹² Finally, the D.C. Circuit has offered a similar approach in an analogous setting. See *Portland Cement Assoc. v. Ruckelshaus*, 486 F.2d 375, 387 (col. 2) (1973).¹³

B. Crediting of Decreases in Fugitive Emissions

EPA agrees that its rationale for allowing credit for net decreases in fugitive emissions was flawed primarily for the reasons DOI gave in the comments quoted above.

C. Proposal to Postpone Deletion of the Current Listing Pending Rulemaking

Since EPA has decided to reaffirm the current listing, its proposal to postpone deletion of the listing, and the comments on it, are moot.

D. Inclusion of Fugitive Emissions in Pollutant Applicability Determinations

As EPA indicated above in sections II.D. and IV.A., it does not agree that Congress must have intended the rulemaking requirement of section 302(j) to apply to pollutant applicability determinations.

V. Final Action

In light of its conclusion that its 1980 interpretation was correct, EPA has decided to retain its current requirements for the inclusion of fugitive emissions and, to reconfigure those requirements as they relate to major stationary sources in a form that as to those sources will satisfy its commitment to AMC in January 1981.

¹² Further, the court in *Duquesne Light* rejected industry arguments, identical to those made in this proceeding, that EPA should make a much more searching inquiry into the availability of measurement, modeling, and control techniques.

¹³ See Footnote, 10.

¹⁰ In adopting this "safety valve" interpretation, EPA does not intend to suggest that it views section 302(j) as prohibiting it from gathering and analyzing cost/benefit data prior to a proposal or a final action under that section. To the contrary, while EPA has concluded that Congress did not intend to require a cost/benefit analysis before proposal, it has also concluded that Congress did not intend to prohibit it, either. Consequently, EPA intends to adhere in the future to applicable requirements for cost/benefit analyses under E.O. 12291 not only with respect to proposals but also with respect to final actions. 40 FR 13193 (1981).

This reaffirmation of the 1980 interpretation goes primarily to the content of the rulemaking requirement in section 302(j) as opposed to the applicability of the requirement. As indicated in the companion notice, EPA is inclined to view the requirement as not applying to modifications. For this reason, EPA is withholding final action with respect to that portion of the rulemaking regarding the definition of "major modification" pending a final decision on the new applicability interpretation. EPA is taking final action on the change in the definition of "major stationary source," but is retaining current provisions concerning the treatment of fugitive emissions from modifications.

¹¹ EPA will consider all available information regarding socioeconomic impacts and associated benefits in arriving at a final decision whether to list or not to list the given source category. EPA will consider a broad range of cost/benefit concerns, including economic efficiency, societal costs and benefits, and distributive costs such as changes in price, employment, and balance in trade.

The amendments EPA is promulgating today are intended to implement this decision. As mentioned, the Agency, elsewhere in today's *Federal Register*, is proposing an interpretive ruling regarding the applicability of the section 302(j) rulemaking requirement to modifications. EPA anticipates final action on the interpretive ruling, after the public comment period, in the form of promulgating, as proposed in the August 25, 1983 *Federal Register*, the amendments to 40 CFR 51.24(i)(4)(ii); 52.21(i)(4)(vii); 51.18(j)(4); Part 51, Appendix S, ILG.; 52.24(h). This will also take the form of not promulgating the changes identified as 40 CFR 51.24(b)(2)(iv); 52.21(b)(2)(iv); 51.18(j)(1)(v)(d); Part 51, Appendix S, ILA.5(iv); 52.24(f)(5)(iv) in the August 25, 1983, proposal.

VI. Parallel Actions

EPA's review of the 1980 rulemaking record has made it aware that that rulemaking could have given fuller notice of EPA's interpretation of section 302(j). Though EPA believes its 1980 rulemaking met the applicable legal standards, section 307(d)(8), 42 U.S.C. 7607(d)(8), as a matter of policy it is soliciting further comment on the listing of the 30 categories in a parallel notice in the "Proposed Rules" section of the *Federal Register*. If EPA receives significant comment on any source category, it will reconsider the listing of that category.

In the same parallel notice, EPA is also proposing to add strip mines to the list of 30 categories and to adopt a new interpretation of Section 302(j) as it relates to modifications.

VII. Miscellaneous

The final actions here are nationally applicable and based on determinations of nationwide scope and effect. Therefore, under section 307(b)(1) of the Act, 42 U.S.C. 7607(b)(1), judicial review may be sought only in the United States Court of Appeals for the District of Columbia Circuit. Petitions for judicial rule must be filed on or before December 26, 1984.

VIII. Regulatory Flexibility Act

As required by section 3(a) of the Regulatory Flexibility Act, 5 U.S.C. 605(b), I certify that this regulation will not have a significant impact on a substantial number of small entities. This action reaffirms the current requirements and imposes no new costs on any entities, small or large.

IX. E.O. 12291

Under Executive Order 12291, this action is not considered "major." This

action reaffirms the current requirements and therefore, does not have an annual effect on the economy of \$100 million or more. This action has been submitted to the Office of Management and Budget for review under Executive Order 12291.

List of Subjects

40 CFR Part 51

Administrative practice and procedures, Air pollution control, Intergovernmental relations, Reporting and recordkeeping requirements, Ozone, Sulfur oxides, Nitrogen dioxide, Lead, Particulate matter, Hydrocarbon, Carbon monoxide.

40 CFR Part 52

Air pollution control, Ozone, Sulfur oxides, Nitrogen dioxide, Lead, Particulate matter, Carbon monoxide, Hydrocarbons.

Authority: Section 101(b)(1), 110, 160-169, 171-178, and 301(a) of the Clean Air Act as amended [42 U.S.C. 7401(b)(1), 7410, 7470-79, 7501-08 and 7601(a); Section 129(a) of the Clean Air Act Amendments of 1977 (Pub. L. No. 95-95, 91 Stat. 685 [August 7, 1977])].

Dated: October 19, 1984.

Alvin L. Alm,

Deputy Administrator.

A. Requirements for State PSD Plans

Section 51.24 of Title 40 of the Code of Federal Regulations is amended as follows:

1. By adding a new paragraph (b)(1)(iii) to read as follows: "(iii) The fugitive emissions of a stationary source shall not be included in determining for any of the purposes of this section whether it is a major stationary source, unless the source belongs to one of the following categories of stationary sources:

- (a) Coal cleaning plants (with thermal dryers);
- (b) Kraft pulp mills;
- (c) Portland cement plants;
- (d) Primary zinc smelters;
- (e) Iron and steel mills;
- (f) Primary aluminum ore reduction plants;
- (g) Primary copper smelters;
- (h) Municipal incinerators capable of charging more than 250 tons of refuse per day;
- (i) Hydrofluoric, sulfuric, or nitric acid plants;
- (j) Petroleum refineries;
- (k) Lime plants;
- (l) Phosphate rock processing plants;
- (m) Coke oven batteries;
- (n) Sulfur recovery plants;
- (o) Carbon black plants (furnace process);
- (p) Primary lead smelters;
- (q) Fuel conversion plants;
- (r) Sintering plants;
- (s) Secondary metal production plants;
- (t) Chemical process plants;

(u) Fossil-fuel boilers (or combination thereof) totaling more than 250 million British thermal units per hour heat input;

(v) Petroleum storage and transfer units with a total storage capacity exceeding 300,000 barrels;

(w) Taconite ore processing plants;

(x) Glass fiber processing plants;

(y) Charcoal production plants;

(z) Fossil fuel-fired steam electric plants of more than 250 million British thermal units per hour heat input;

(aa) Any other stationary source category which, as of August 7, 1980, is being regulated under Section 111 or 112 of the Act."

B. New Source Review for PSD Purposes

Section 52.21 of Title 40 of the Code of Federal Regulations is amended as follows:

1. By adding a new paragraph (b)(1)(iii) to read as follows: "(iii) The fugitive emissions of a stationary source shall not be included in determining for any of the purposes of this section whether it is a major stationary source, unless the source belongs to one of the following categories of stationary sources:

- (a) Coal cleaning plants (with thermal dryers);
- (b) Kraft pulp mills;
- (c) Portland cement plants;
- (d) Primary zinc smelters;
- (e) Iron and steel mills;
- (f) Primary aluminum ore reduction plants;
- (g) Primary copper smelters;
- (h) Municipal incinerators capable of charging more than 250 tons of refuse per day;
- (i) Hydrofluoric, sulfuric, or nitric acid plants;
- (j) Petroleum refineries;
- (k) Lime plants;
- (l) Phosphate rock processing plants;
- (m) Coke oven batteries;
- (n) Sulfur recovery plants;
- (o) Carbon black plants (furnace process);
- (p) Primary lead smelters;
- (q) Fuel conversion plants;
- (r) Sintering plants;
- (s) Secondary metal production plants;
- (t) Chemical process plants;
- (u) Fossil-fuel boilers (or combination thereof) totaling more than 250 million British thermal units per hour heat input;
- (v) Petroleum storage and transfer units with a total storage capacity exceeding 300,000 barrels;
- (w) Taconite ore processing plants;
- (x) Glass fiber processing plants;
- (y) Charcoal production plants;
- (z) Fossil fuel-fired steam electric plants of more than 250 million British thermal units per hour heat input." and
- (aa) Any other stationary source category which, as of August 7, 1980, is being regulated under Section 111 or 112 of the Act."

C. State Plans for New Source Review for Nonattainment Purposes

Section 51.18 of Title 40 of the Code of Federal Regulations is amended as follows:

1. By adding a new paragraph (j)(1)(iv)(c) to read as follows: "(c) The fugitive emissions of a stationary source shall not be included in determining for any of the purposes of this subsection whether it is a major stationary source, unless the source belongs to one of the following categories of stationary sources:

- (1) Coal cleaning plants (with thermal dryers);
- (2) Kraft pulp mills;
- (3) Portland cement plants;
- (4) Primary zinc smelters;
- (5) Iron and steel mills;
- (6) Primary aluminum ore reduction plants;
- (7) Primary copper smelters;
- (8) Municipal incinerators capable of charging more than 250 tons of refuse per day;
- (9) Hydrofluoric, sulfuric, or nitric acid plants;
- (10) Petroleum refineries;
- (11) Lime plants;
- (12) Phosphate rock processing plants;
- (13) Coke oven batteries;
- (14) Sulfur recovery plants;
- (15) Carbon black plants (furnace process);
- (16) Primary lead smelters;
- (17) Fuel conversion plants;
- (18) Sintering plants;
- (19) Secondary metal production plants;
- (20) Chemical process plants;
- (21) Fossil-fuel boilers (or combination thereof) totaling more than 250 million British thermal units per hour heat input;
- (22) Petroleum storage and transfer units with a total storage capacity exceeding 300,000 barrels;
- (23) Taconite ore processing plants;
- (24) Glass fiber processing plants;
- (25) Charcoal production plants;
- (26) Fossil fuel-fired steam electric plants of more than 250 million British thermal units per hour heat input;
- (27) Any other stationary source category which, as of August 7, 1980, is being regulated under Section 111 or 112 of the Act."

D. Emission Offset Interpretative Ruling

Appendix S of Part 51 of Title 40 of the Code of Federal Regulations is amended as follows:

1. By adding a new paragraph II.A.4(iii) to read as follows: "(iii) The fugitive emissions of a stationary source shall not be included in determining for any of the purposes of this ruling whether it is a major stationary source, unless the source belongs to one of the following categories of stationary sources:

- (a) Coal cleaning plants (with thermal dryers);
- (b) Kraft pulp mills;
- (c) Portland cement plants;
- (d) Primary zinc smelters;
- (e) Iron and steel mills;
- (f) Primary aluminum ore reduction plants;
- (g) Primary copper smelters;
- (h) Municipal incinerators capable of charging more than 250 tons of refuse per day;
- (i) Hydrofluoric, sulfuric, or nitric acid plants;
- (j) Petroleum refineries;
- (k) Lime plants;
- (l) Phosphate rock processing plants;
- (m) Coke oven batteries;
- (n) Sulfur recovery plants;
- (o) Carbon black plants (furnace process);
- (p) Primary lead smelters;
- (q) Fuel conversion plants;
- (r) Sintering plants;
- (s) Secondary metal production plants;
- (t) Chemical process plants;
- (u) Fossil-fuel boilers (or combination thereof) totaling more than 250 million British thermal units per hour heat input;
- (v) Petroleum storage and transfer units with a total storage capacity exceeding 300,000 barrels;
- (w) Taconite ore processing plants;
- (x) Glass fiber processing plants;
- (y) Charcoal production plants;
- (z) Fossil fuel-fired steam electric plants of more than 250 million British thermal units per hour heat input;
- (aa) Any other stationary source category which, as of August 7, 1980, is being regulated under Section 111 or 112 of the Act."

E. Restrictions on Construction for Nonattainment Areas

Section 52.24 of Title 40 of the Code of Federal Regulations is amended as follows:

1. By adding a new paragraph (f)(4)(iii) to read as follows: "(iii) The fugitive emissions of a stationary source shall not be included in determining for any of the purposes of this section whether it is a major stationary source, unless the source belongs to one of the following categories of stationary sources:

- (a) Coal cleaning plants (with thermal dryers);
- (b) Kraft pulp mills;
- (c) Portland cement plants;
- (d) Primary zinc smelters;
- (e) Iron and steel mills;
- (f) Primary aluminum ore reduction plants;
- (g) Primary copper smelters;
- (h) Municipal incinerators capable of charging more than 250 tons of refuse per day;
- (i) Hydrofluoric, sulfuric, or nitric acid plants;
- (j) Petroleum refineries;
- (k) Lime plants;
- (l) Phosphate rock processing plants;
- (m) Coke oven batteries;
- (n) Sulfur recovery plants;
- (o) Carbon black plants (furnace process);
- (p) Primary lead smelters;
- (q) Fuel conversion plants;
- (r) Sintering plants;
- (s) Secondary metal production plants;
- (t) Chemical process plants;
- (u) Fossil-fuel boilers (or combination thereof) totaling more than 250 million British thermal units per hour heat input;
- (v) Petroleum storage and transfer units with a total storage capacity exceeding 300,000 barrels;
- (w) Taconite ore processing plants;
- (x) Glass fiber processing plants;
- (y) Charcoal production plants;
- (z) Fossil fuel-fired steam electric plants of more than 250 million British thermal units per hour heat input;
- (aa) Any other stationary source category which, as of August 7, 1980, is being regulated under Section 111 or 112 of the Act."

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